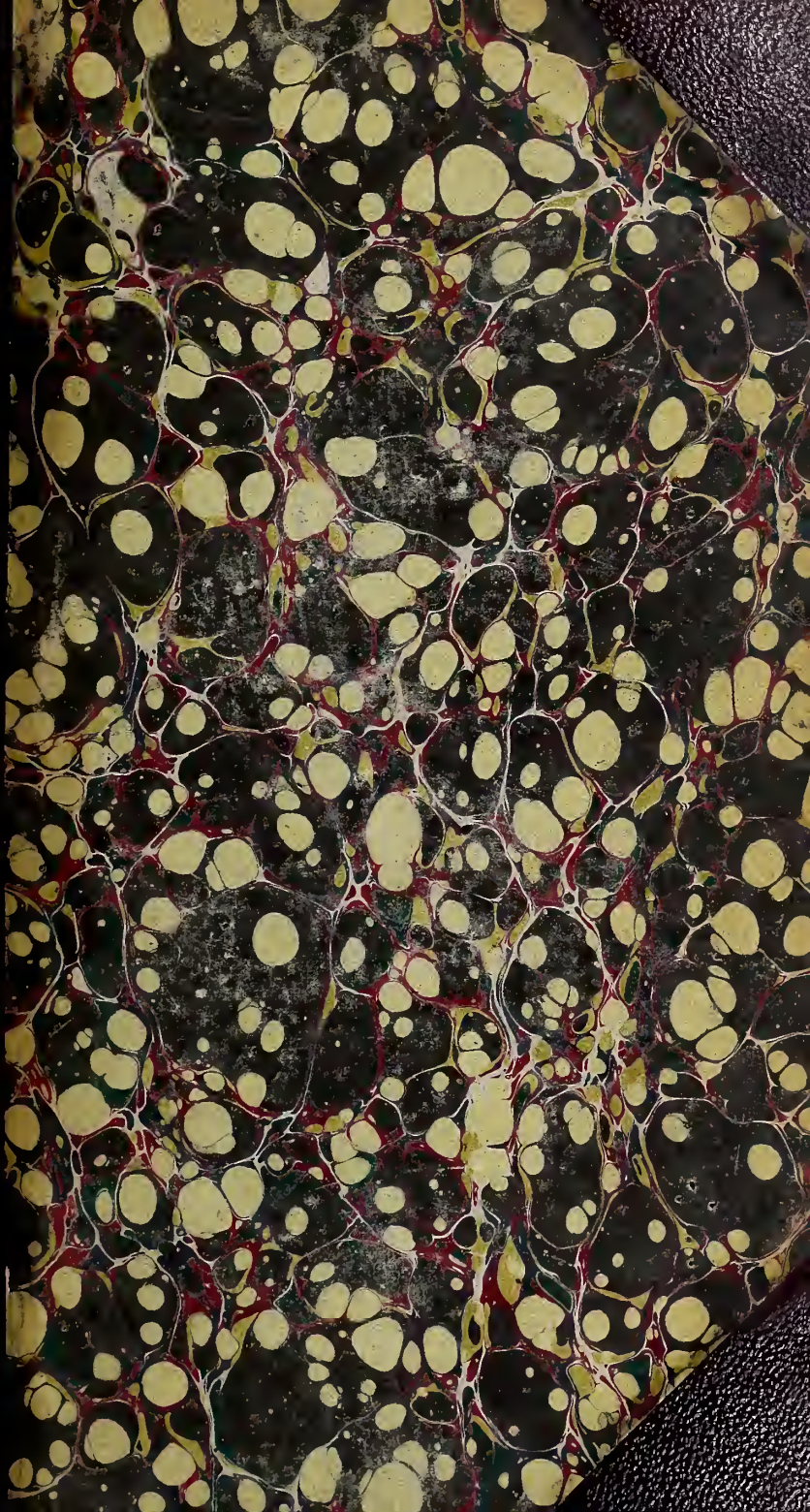

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JOURNAL

OF

THE ASIATIC SOCIETY.

No. 56.—August, 1836.

I.—*Extracts from the* Mohit *(the Ocean), a Turkish work on Navigation in the Indian Seas. Translated and communicated by* Joseph Von Hammer, *Baron* Purgstall, *Aulic Counsellor, and Prof. Orient. Lang. at Vienna, Hon. Memb. As. Socy. &c. &c.*

[Continued from vol. iii. p. 553.]

[We know not how to express sufficient gratitude to our illustrious correspondent for his courtesy in allowing these pages to be the medium of publication of this curious manuscript of Sídí Ali Capudan. The manner in which it was discovered by the Baron at Naples, after 30 years' fruitless inquiry, was described in the preamble of the former extract. The value set upon it by this eminent oriental scholar, induced him to offer to translate the whole for the Oriental Translation Committee; but through some accident, (we can ascribe it to no other cause,) an offer so generous has remained unacknowledged. "Without doubt," our correspondent writes, "the book would deserve much more the care of the Committee than many of minor interest published by it; but although to my volunteer I got no more answer than to my offer of an edition and translation of Wassof, *agar hájat báshed,* as the Persians say, and with the assistance and remarks of some Indian sea-faring gentlemen on the parts already translated, I hope to send chapter after chapter to your Indian Journal, and thus we shall be independent of the Committee."

On the last occasion we derived some little assistance from the *Nakhodas* of the Arabic vessels, in recognizing the places alluded to in the Section on the monsoons. The same plan we have been prevented, in a great measure, from following now, through the absence of these traders, who only arrive here towards the end of the south-west monsoon (August-September) and return with the setting in of the north-east wind in February-March. We have, however, been able to trace most of the principal names on the map, and have marked them in foot notes. The catalogue of the names of islands in the Red Sea would be—and may, we hope, still be—of great use to the officers of the Indian navy now engaged in its survey.

We have discovered many of the islands and capes mentioned by Si'di' in the large manuscript chart sent round for the use of the steamer *Forbes* in its passage up the Red Sea: but by far the greater number of islets remain unnamed; and to them, with a little local inquiry, Si'di''s list might doubtless be easily applied. The book is also of great service in pointing out the maritime channels of Arab commerce, at the period perhaps of its highest prosperity, before the Portuguese, the Dutch, and the English had diverted the majority of the Europe supply to the newly discovered route by the Cape of Good Hope.

The Baron* is in hopes that the presence of sea-faring Arabs will also enable us to assist him in understanding the prior and more difficult chapters of the work, wherein is discussed the manner of "making the pole," (جاه,) or taking the altitude of the polar star. Here, however, we have little chance of success. The present navigators have adopted the improved methods of Europe:—they take their latitude by the sun, and with the modern sextant; and the richer merchants even provide their vessels with chronometers:—not that the Arabs yet possess translated tables or ephemerides by which to work the course themselves; but they almost universally employ an English sailing master, to whose superior intelligence they implicitly confide.

Nothing then have we been able to learn of the instrument used by the early navigators in taking their latitude from the circumpolar stars; or of the measure of an arc called *issabâ* (اصبع) inch, and its subdivision into eight *zâms* (ازوام) We find however on inquiry that the latter term is still applied to terrestrial measurement, and is well known to nautical people of the present day as the fifth part of a geographical degree, (twelve nautical miles.) Though this measure does not at all accord with the sailing distances quoted by Si'di' Capudan, from well known places, it will be seen presently to correspond exactly with the value of the celestial inch or *issabâ* as deduced from the internal evidence of the work itself.

The Baron Hammer in his private letter to us writes thus: "Concerning the measure of ازوام the first section of the IIIrd. chapter explains as follows: 'The *zâm*, زام, is either the *practical* one, عرفي, or the *rhetorical*, اصطلاحي†; The *practical* is one of the eight parts in which day and night are divided: the *rhetorical* is the eighth part of an inch, صبع, in

* It seems we erred in giving that designation to Counsellor Von Hammer in 1833; but our announcement proved prophetic; the Emperor having conferred the title on him in December 1835, upon his succeeding to the little state of Hoinfeld, bequeathed to him and his male descendants by the late Countess Purgstall (Cranstoun). The present paper is a proof that this accession of honors will not detract from the zeal of his Oriental studies.—Ed.

† We are inclined to think that this word اصطلاحي *istilahiy*, is an error of the transcriber, and that it should be اصطرلابي *usturlâbiy*, appertaining to the divisions of the astrolabe.—Ed.

the ascension, ارتفاع and descension انحطاط of the stars. For example, if you go north and make the star جدى, *eight zám;* it is elevated one inch: and if you go south, it is by eight *záms*, one inch depressed منحط. This is the whole section on the measure of the زام (plural, ازوام) an explanation which, however, helps me not a bit to understand the true measure of a *zám*, in the reckoning of the ship's course so frequently employed in the subsequent chapters. Nor have I been able to obtain any explanation from our astronomers."

We will now venture to offer the explanation which has occurred to ourselves from perusal of the present translated chapter of voyages, and the above extract conjointly.

1. The *zám*, in practical or vulgar parlance, is said to be the eighth part of the day and night. This, doubtless, applies to the nautical division of the twenty-four hours into 8 watches, generally prevailing among oriental nations, and exactly corresponding with the 8 *pahars* of the Hindus*.

2. Again, the *zám* is seen above to be the eighth part of the ordinary inch or *issabâ;* as the *jo*, or *yava* of the Hindus, is the eighth of their *angúl:* and the *line* of Europeans is the eighth of their inch: it is, in fact, the vulgar subdivision by two and two, both of the unit of measure and of time. Perhaps, indeed, *zám* may be a mere corruption of *jo*.

It would seem, that to suit ordinary capacities, both the *issabâ* and the *zám* had been transferred to the arc of the rude quadrant or astrolabe used by the Arab seamen, in lieu of the more scientific division into degrees and minutes. Or it is very possible that in still ruder times the altitude of the polar star above the horizon was actually measured by fingers' breadths, the hand being held out at the natural arms' length in front of the face: for the measure of the arc thus subtended would nearly agree with the value of the *issabâ* derived from other considerations.

The actual value of the *issabâ* in degrees and minutes may be readily found from the latitudes, or polar altitudes, of known places extracted from Sı'dı's work. Thus the elevation of the pole Cape Guardafui is always quoted at $4\frac{1}{8}$ inch; while at Jedda it is called 10 inches; difference, $5\frac{7}{8}$ inches. The difference of latitude by our mode of reckoning is $21° 28' - 12°, 00' = 9° 28'$; which gives nearly $1° 37'$ for the *issabâ* or inch. Now, as before stated, we were informed by an Arab *Muallim* that the *zám* was 12 of our minutes, or 5 *záms* = 1 degree. Therefore, 8 *záms* or 1 *issabá* should be equal to $96'$; or $1° 36'$,—so close an accordance with the foregoing result, as to leave no doubt of the value of the *issabá* and *zám* being $96'$ and $12'$ respectively on the celestial arc.

It still remains to explain the divisions of the lower arc of their rude instrument, and the *kiás*, or point at which the readings of the upper and lower index coincide, as also the point whence the divisions commence on both quadrants, or what may be called their index error.

* The subdivision of the *pahar* into eight *gharis*, is like the "eight bells" into which our nautical watch is counted off.

In the description of the islands of the Arabic coast, it will be seen that as the readings of the upper limb increase, those of the lower quadrant decrease, their sum being constantly $14\frac{1}{4}$ *issabâ.*

Thus, at *Saibán,* (Loheia,) the upper reading is $6\frac{3}{4}$, lower $7\frac{1}{2}$, sum $14\frac{1}{4}$.
at Jedda, ditto 10 „ $4\frac{1}{4}$ „ $14\frac{1}{4}$.

It is evident, therefore, that the *kiás* occurs at $7\frac{1}{8}$ inch, or 7 *issabâ* 1 *zám,* the half of $14\frac{1}{4}$.

Again, for the zero point we have the following data :—

	true lat.	issabâ			zero point
By the Jedda latitude, ...	21° 28′	— 10 ×	1° 36′	(= 16° 00′)	= 5° 28′
By the Guardafui, latitude ,.....	12 00	— $4\frac{1}{8}$ ×	1 36	(= 6 36)	= 5 24
By Darwesh, or Dorish, ...	18 30	— 8 ×	1 36	(= 12 48)	= 5 42
By Loheia or Saibán, ...	15 41	— $6\frac{3}{4}$ ×	1 36	(= 10 48)	= 4 53
By Wasaliat, (Fossailiat,)	17 42	— $7\frac{3}{4}$ ×	1 36	(= 12 24)	= 5 18
By Danek, ...	19 31	— $8\frac{1}{2}$ ×	1 36	(= 13 32)	= 5 59
By Haseek sinave, *(Harik-simár),*	19 50	— $8\frac{3}{4}$ ×	1 36	(= 13 56)	= 5 54

The average index error or zero point is thus found to be 5° 31′, or in round terms $5\frac{1}{2}$ degrees, to be added to altitudes taken by the *issabâ* scale. The only conjecture we can offer as to the origin of such an arbitrary arrangement is, that the zero has been fixed at the lowest elevation at which it is safe to trust to the measurement by the polar star : so that mariners, on finding *polaris* fall below 0 inches, would then know they should take their latitude by *Farkadain,* or β and γ ursæ minoris.

The zero point of the under quadrant may be easily deduced from the foregoing to be at 28° 18′ below the horizontal line. This we may suppose was the highest elevation of the polar star observable by navigators in the Red Sea or in the Persian gulph. Indeed the latitude of Suez and of the mouths of the Euphrates, the most northerly ports visited by their ships, being 30°, the difference between this and 28° 18′ is very nearly equal to the north polar distance of *polaris* (1° 42′) : and in the period from January to July it would be only the inferior meridional passage that could be observed. It is generally supposed that the early astronomers regarded the polar star as stationary, and did not trouble themselves to attain even the accuracy we are giving them credit for; but an expression, which occurs in a following page, shows that this was not the case ; since it directs, that 'if it be not time to take the polar star, then another star is to be substituted.'

As a proof, however, that no great accuracy was attainable, it may be remarked that the two stars called by the Arabs *Farkadain* (β and γ ursæ minoris) are accounted to have the same altitude; whereas in reality there is a difference of no less than three degrees in their declination ; but it is probable that the altitude was taken constantly by either the upper or the lower star, although we have no data here to decide this point.

The following table will be found very useful for the conversion of *issabâs* into degrees and minutes. In it the quadrantal difference of the *Farkadain* is assumed at $6\frac{7}{8}$ *issabâ,* or 11° + 5° 30′, = NPD 16° 30′, which is nearly the average north polar distance of the two stars.

North Latitude.		*Elevation of Polaris. [at his inferior meridional passage ?]*				*Elevation of Farkadain.*	
Degrees.	Minutes.	*By upper quadrant.* Issabâ.	Zám.	*By lower quadrant.* Issabâ.	Zám.	*By upper quadrant.* Issabâ.	Zám.
0	0					3	3½
0	54					4	0
2	30					5	0
4	6					6	0
5	30	0	0	14	2	6	7
7	6	1	0	13	2	7	7
8	42	2	0	12	2	8	7
10	18	3	0	11	2	9	7
11	54	4	0	10	2	10	7
13	30	5	0	9	2	11	7
15	6	6	0	8	2	12	7
16	54	7	1 (kias)	7	1		
18	18	8	0	6	2		
19	54	9	0	5	2		
21	30	10	0	4	2		
23	6	11	0	3	2		
24	42	12	0	2	2		
26	18	13	0	1	2		
28	18	14	2	0	0		

With regard to the value of the *zám* in terrestrial measurement, 12′ or 12 nautical miles* would perhaps be applicable to many of the instances in Sı′dı″s work; for example, where he directs that in running down the Malabar coast the navigators should keep five *záms* distant from the shore, or 72 miles, which is the common practice. But to suit other cases, the *zám* must be assumed at half a degree or upwards; and this is probably attributable to the very erroneous notions of the longitudinal distances of places prevalent before good charts were formed. With the aid of a map, however, and the bearings given by our author, it is easy to describe the track of his several voyages. We have thus derived the probable measurements given in the following notes, in which we have also given the names of the places on our charts where they were recognizable.—Ed.]

THE NINTH CHAPTER.

Containing an explanation of some Islands and Voyages, and precautions, the knowledge of which is requisite for Navigators in the Indian Seas.

First Section.—*The islands of the Arabic coast*†.

The island *Okbán*[1], north of which the island *Katáma*[2], afterwards *Sil Nobán*[3], the island *Sána*[4], then the two islands *Badhiáin*[5], the environs of which are shallow; after them the islands *Zútheláth*[6], the

[1] عكبان [2] كتامه [3] صيل نوبان [4] سانه [5] بضيعين [5] ذوثلاث

* Has the terrestrial *zám* any connection with the *jojan* or *yojana* of the Hindus, which is estimated at somewhat more than 10 miles?

† This enumeration of islands commences from near Loheia, lat. 15° 41′ on the Arabic coast, in front of which lie the islands of *Okbáne*, *Kotama*, and *Loban*, with *Camaran* a little to the south. Most of the rest are not to be found by name on Capt. Elwon's new chart.—Ed.

island *Hawal*[1], the island *Haula*[2]*, which is situated behind *Hawal;* the islands *Zú Kassár*[3]† through which great ships cannot pass; behind *Zú Kassár*, the island *Mokammar*[4]‡, and behind that the island *Hodaife*[5]§, on which are a few trees, and no passage between them on account of a great number of rocks; the island *Hodaife* is the last towards *Bákil*[6] on the seaside: the water is here very unclean. On the east side of them is a small island called *Masad*[7], but no passage between them; behind them the island *Jihán el Kebír*[8]||, and near it on the nether side the island *Jihán ess-ssaghír*[9]¶: the sea between them is full of shallows, to east of them the island *Sásoh*[10] which is a great mountainous island: on the western side of it a shallow called *amariya*[11]. Approaching from the seaside the island *Sásoh* is in sight before the *amariya;* on this shoal the depth of the water is five fathoms *(kúláj.)* Between the two above said islands the great and little *Jihán* is also an *amariya* or shallow. Be it known that the cape of *Jazar Farsán*[12]** lies north between *Sharja*[13] and *Jazá*[14] on the sea side are the two islands *Zú Kharáb*[15]†† and *Zú Saláb*[16]. *Sásoh* is on the sea side of these two islands between south and west. On the sea side of *Sásoh* are two islands, each of which is called *Dohr jihán* (back of the world.) Be it known that the island of *Seil Mothan*[17]‡‡ is the end of the Persian islands: on the sea side and north side there is no coast except that of the island of *Irak Ozáb*[18]. The back of *Jazar Farsán*[19]§§, and the unclean places are on the side of *Irak Ozáb;* towards the east side lies the back of the island *Rakab*[20]; the most eastern of all is the island *Jozián*[21], from thence *Borrassli*[22] is in sight. There is a small

جهان الكبير[8] مسد[7] باقل[6] هديقه[5] مقمر[4] ذرقصار[3] حولا[2] حول[1]
جزا[14] شرجه[13] جزرفرسان[12] امريه[11] ساسوه[10] جهان الصغير[9]
عرق عزاب[19] جزرفرسان[18] صيل مطحن[17] ذوسلاب[16] ذوخراب[15]
ركب[20] زيان[21] براصلي[22]

* Howalí? on Abyssinian coast, 16° 30′, can hardly be intended.

† Rasher? below Camaran; the R. may be miswritten for K. (See p. 449).

‡ Ras Majarmla? 14° 30′. } there may be small islands so called from their
§ Hodeidah Cape? 14° 45′. } proximity to these capes.

|| *Zebayer* islands, 15° 2′: the Z is probably a miswriting of K.

¶ *Gebel Zogar*, or *Zeghir* of map, on the 14th parallel of latitude.

** Theran? 17° 12′. The word *Farsán* is applied farther on to the Abyssinian coast,—it is probably an error of transcription.

†† *Gorab*, 17° 10′. ‡‡ *Mutharhane*, 17° 28′.

§§ Perhaps the Cape *Jazar Farsán* which is mentioned above.—H.

bank[1] called *Akdáf*[2]. After the island *Seil al Motahan* there is nothing but sea, but on the border of the sea at the left are two sandy islands called *Fossailiát*[3]*. At their lower extremity are the islands *Jazira-i Somra*[4]† and *Zahra*[5]. Be it known that on the sea side of *Rakab*[6] is a shallow in which the ground is visible, but is eight fathoms deep. Some say that parts of it are impassable for ships; this *amariya* or shallow is called *Ork*[7] *Fossailiát;* after (south of?) the *Fossailiát* are three islands called *Jámas*[8]‡. On the sea side towards the north is a great island called *Zokák*[9]§, and on the south side a long bank, on the out side of which are the breakers[10], called *Tihál*[11]‖ *Merír*[12], but the water has eight fathoms. This island and the above mentioned lie south on the sea side of mount *Ssabaya*[13]¶. From *Tihál Merír* in the direction of the sea side and towards the last is a *Mira* (shallow) called *Irki Isa* (Jesus's vein :) the shallowest water is there two fathoms and a half, and the deepest eight fathoms. All these *amariye* (shallows not to be used) are in the Arabic sea. After *Zokák* is a great island called *Maassaba*** on which are some trees; on its beginning[15] is a small ridge[16] called *Bodúr*. After *Maassaba* are four great islands, called *Bahr-ul-Kabír*, (the great sea;) the two most southerly are called *Lam*[17] and *Han*[18]: they are situated on the sea side of mount *Ssabaya;* after them is the ridge[19] *Ablaj*[20]††; on the south-west of it is a great bank[21] called *Shobi Yahya*[22]; on the north side of the island *Ablaj* is a mountainous bank, which is a long ridge, and extends till to the ridge of *Kimárí*[23], and is next the island *Faraye*[24]. Between them is a *Ritka*[25]; that is to say, a rock. On the sea side of the mountainous ridge is the island *Darwísh*[26]‡‡. On the sea and north side is a bank[27] called *Helya*[28]§§, and on the north side a great island called *Shobain*[29]‖‖; after it the island *Múshka*[30]¶¶, and

جومس [8] عرق [7] ركب [6] ظهره [5] سمره [4] فصيليات [3] اكداف [2] شعب [1]
مطاع [15] معصبه [14] جبل صبايا [13] مرير [12] طحال [11] طپوق [10] زقاق [9]
قماري [23] شعب عي [22] شعب [21] ابلج [20] ظهره [19] هن [18] لم [17] ظهره [16]
موشكه [30] شعبين [29] حايه [28] درويش [26] شعب [27] رتقه [25] فرايه [24]

* Wussaleat, of Capt. Elwon's map, in latitude 17° 42′.
† Simer, east of ditto.
‡ Shab el jurmah, 17° 34′.
§ Zoogah, 18° 5′.
‖ Elalthaller? 18° 15′.
¶ A mountain on the coast? Gebel Tase Sharme?
** Massuba, 18° 14′.
†† Aboo Lelf (on the shore.)
‡‡ Dorish, 18° 31′.
§§ Halli? S. of Coomefiddah.
‖‖ Shabbane, 18° 44′.
¶¶ Mooshka.

west to it lies the island *Shíka*[1]*, which is also a great island; on the sea side a great bank[2] called *Shob Sowaidi*[3]; on the north and land side of the island *Shíkan* is the island *Zú Shajíh*[4]†. On the western side is a shallow[5] called *Irk-ul-oyúra*[6]; next to it a segment[7] called *Kitaei Zaidi*[8]. Afterwards on the sea and north side an island called *Tajedda*[9]‡, and on the sea and north side of this a ridge[10]§ called *Zohrai Kassr*[11], and an island called *Takshef*[12]: on its sea side a ridge[13] called *Zohrai Takshef*[14]; in the neighbourhood of this are great banks[15] called *Dakhakhín*[16]. Be it known, that between the islands of *Dánek*[17]‖ and *Tajedda* both are in sight, if there is no hazy weather[18]. These (of *Dakhakhín*) run down to *Danek* and *Tajedda* towards the west; from the *Dakhakhín* you see the island *Shobaz-zokár*[19]¶; these islands lie from *Dánek* towards the coast of *Yaman*, that is to say, south, on one side of *Shobaz-zokár* is the island *Wússúl Omm Dahresh*[20]: on the land side of *Dánek* towards Syria, that is to say, north, are in some distance some segments (portions of rock[21]?) called *Ibn Saaid*[22]. The islands called *Dánek* are three: the first to the south is called *Shobaz-zokár*, and the next northern one *Khabíre*[23], on the sea side of it is a segment[24] called *Omm Moen*[25], north of which lies *Dánek*, the greatest of all; round it are four banks[26]. On the land side is a passage between them and *Dánek*; they are called *Mahdhan*[27], *Makhref*[28], *Korb*[29], and *Kebla*[30]. After *Dánek* are four islands called *Bahrez-zihár*[31]; the name of the first is *Matata*[32]**, of the second *Jodair*[33]††, of the third *Marmá*[34]‡‡, and of the fourth *Zohrai Marmá*. On the land side of them towards N. N. E. is a segment[35] called *Zeinób*[36], and here N. the *Shob Salim*, a long bank; from here towards E. S. E. are three islands in sight. After *Zihár* follow two banks and two called *Homais*[37]; north of them are no islands, but only some

[1] شيكا [2] شعب [3] شعب سويدي [4] ذ شجيح [5] عرق [6] عرق العيورة [7] قطعه
[8] قطعه زيدي [9] تجده [10] ظهره [11] ظهره قصر [12] ظهره تكشف [13] ظهره تكشف
[14] ظهر [15] شعب [16] دخاخين [17] دانق [18] غبار [19] شعب الذكر [20] وصول ام دهرش
[21] قطعه [22] ابن سعيد [23] خبيره [24] قطعه [25] ام معين [26] شعب
[27] محضن [28] مخرف [29] قرب [30] قباه [31] بحر الظهار [32] مطاطا [33] جدير
[34] مرما [35] قطعه [36] زيناب [37] حميس

* Shaker, 18° 53′.
† Doshagea.
‡ Tegdah, 18° 58′.
§ Marked dangerous patches in chart.
‖ Dahnac, 19° 32′.
¶ Shab Assugga, 19° 22′.
** Mutatoo, 19° 45′.
†† Jedere.
‡‡ Murrmah, 2 isl.

segments, the names of which are *Rehál*[1], *Majrádíb*[2], and *Hakan*[3]; the last lies to the land side and north to *Majrádíb*; on the western side of *Hakan* is a segment called *Magharriya*[4] above *Kaidán*[5]; after it comes *Tofiya*[6]*, after it the segment *Ssorúm*[7]†, and afterwards *Shob Kamání*[8]‡, which is in the height *Mantaj*[9]. Afterwards *Khoshaat*[10]§ on the height of *Ssámíma*[11]‖, after it *Irk-ghorábí*[12]¶, after it *Mesmári*[13]**, which is on the height of the Black Cape, *Rásol-aswad*††. These islands are the last of the Arabian seas.

Second Section. *Of the islands on the Persian*‡‡ *coast.*

The first are those of the islands *Dahlak*[14]§§ situated south; the first of these islands is *Mokaidah*[15], afterwards *Mahlatán*[16], then the island *Zúbbar*[17], afterwards *Zúkarsh Bent Aadái*[18]: on the sea side of *Zúbbar* and *Zúkarsh* is a bank[19] called *Zúlfokáa*[20]. After *Zúkarsh* is the island *Sífála*[21], afterwards *Balaja*[22]; on the sea side of it is the ridge *Bent Tamarkass*[23]; after it comes great *Háteya* and little *Háteya*[24]‖‖; afterwards *Dozúma*[25], afterwards *Taraza*[26], afterwards *Dalikáf*[27], afterwards *Delfaidal*[28], afterwards *Nahali*[29], afterwards *Ghobári*[30], afterwards *Jadlab*[31], afterwards *Kabihú*[32]; between these two is *Makhádha Bent Antar*[33]; afterwards *Harmal*[34]; this is the last of the northern islands on the sea side; but there are some islands on the western side near the shore. After *Harmal* towards the land side, and N. the island *Rúmiát*[35], afterwards *Auwáli Bent Hatem*[36]¶¶, afterwards *Auwáli Shúra*[37], afterwards *Ssíl Katín*[38], afterwards *Bent Alawa*[39],

1 رحل 2 مجرادیب 3 حقن 4 مغریه 5 قیدان 6 طفیه 7 صروم
8 شعب کماني 9 منتج 10 خشعات 11 صمیمه 12 عرق غراب 13 مسماري
14 دهلك 15 مقیدح 16 مهلطان 17 ذوبر 18 ذوفرش بذت عاي
19 شعب 20 ذوالغقاع 21 سفاله 22 بلجا 23 بذت تمرقص
24 نحاي 29 دلفیدل 28 دلیقف 27 طرزه 26 دزومه 25 حاطیه صغیره, حاطیه کبیره
30 غباری 31 جدلب 32 قبیحو 33 مخاصه بذت عنتر 34 حرمل
35 رومیات 36 عوالي بذت حاتم 37 عوالي شورا 38 صیل قطین
39 بذت علوه

* Tutteffah, 21° 0. † Serome Cliff. ‡ Cobane. § Ul Cussar Shamier.
‖ Simama. ¶ Urgo Gorab. ** Moosmaree.
†† The Cape immediately south of Jeddah.
‡‡ By *Persian* it may be presumed *Abyssinian* must be intended. Perhaps فرسان is a miscopy for حبشان *Habshán* or افریقان *African.*
§§ *Dhalac*, near *Massua*. None of the islands of this groupe can be traced by the names here given, until we come to the northernmost.
‖‖ Two large islands north of *Dhalac.*
¶¶ Howalee Huttoob and Shœrah, 16° 30′.

afterwards the island of *Dafna*[1]. This island situated on the land side and N. is the last of the islands *Dahlek*. If you proceed from *Harmal* N. E. one day and night, your course leads you to the islands of *Tahyrát**, which are seven islands, four of which are situated on the sea side and three on the land side; one of those situated on the land side is called *Delkas*[2], one *Bent Hatem*[3], one *Tastahel*[4], and one *Ráka*[5]; the three on the land side are called *Zúlkorób*[6]; after the four islands situated on the sea side are on the north two islands, a great one called *Mosámara*[7]†, and a small one called *Korb*[8]. On the western side of *Mosámara*, as far as the eye can reach, are two great islands and sandy shoals called *Loka*[9]‡ and *Dilsak*[10]; after them is on the north a great island called *Zúlkefla*[11], and further on three islands are seen. Next to them and at some distance from the shore near *Zú'l asela*[12] is an island called *Torinbo*[13]§. After *Zúlkefla* on the sea and N. side is a small island called *Tamarshah*[14]||, there is a bank[15] and on it a rock resembling a chair. After *Tamarshah* north is the island, little *Bár-Músa*[16]¶, which is a little round island, on which are some tombs and trees and shrubs of tooth-pikes. To the N. of it, and at some distance, is the island *Bár-Músa Kabír*[17]**, a great island on which large trees are growing; afterwards, towards the land side, in the direction of W. N. W. is an island called *Bárkat*[18]††, and in the vicinity of it a bank[19] which is called *Shobi Rúmán*[20]. From *Bárkat* in the direction of true west is an island called *Músa Maitbán*[21]. Be it known, that if one of these two islands is seen, the other is hidden; but if you pass between them, both are seen. After *Bár-Músa Kabír* to the N. is the island *Hindjodr*[22]‡‡; this is the last of the northern islands on the sea side. On the south side of these islands is a great bank called the long one[23], and after it a small one. If you steer from *Hindjodr* true west, you come to the port *Masrika*[24], which is at the height of *Sawakín*[25]§§.

مسامره [7] ذوالقراب [6] راکه [5] تستاهل [4] بنت حطم [3] داکس [2] دفنی [1]
ترنبو [13] ذالاثله [12] ذولقفله [11] دلسك [10] لوگه [9] قرب [8]
بارکت [18] بارموسی کبیر [17] بارموسی صغیر [16] شعب [15] تمرشح [14]
شعب الطویل [23] هندجدر [22] موسی میطبان [21] شعب رومان [20] شعب [19]
مسرکا [24] سواکن [25]

* Dahrat Abbeed, &c. 18° 15′.
† Mussarmroo, 18° 50′.
‡ Locha and Undeesellec.
§ Juttat Tromba.
|| Timershear, 18° 56′.
¶ Barmosa Segera.
** In lat. 19° 13′.
†† Barkoot and its Shab.
‡‡ Hindee Geedam.
§§ Suakin, one of the chief ports.

THE THIRD SECTION.—*Of Voyages and indications of the coasts being near.*

FIRST VOYAGE *from Bábolmandam*[1] to mount *Zokar*[2] and *Saibán*[3]*; you go first in the direction N. W. by N. half a *zám*[4], then steering N. N. W. you come to cape *Zokar*, and mount *Arâ*[5] is in sight on the left side; if from *Zokar* you wish to proceed to *Kamrán*[6], and you steer N. by W. you come to *Rakba*[7]†. Here you see for the first time the island *Zasha*[8]‡. The course from *Zokar* to *Saibán* goes in the direction N. W. by which you come first to *Abauel*[9], and then to *Saibán*§, which are seen on the right. Be it known, that if you steer true west you come to *Mokaidah*‖, and if you take from *Saibán* the direction W. by N. you come to the two *Hátia* (the great and small one.) If from *Saibán* you follow the direction W. N. W. you come to *Bent Antar* and *Harmal*, which are islands of the Persian (African) coast; from *Saibán* going straight to the pole you come to *Badhiain:* from *Saibán* going N. by W. you come to the two islands *Jehán* (the great and small one), which are on the Arabian coast.

SECOND VOYAGE *from Saibán (Loheia) to Jedda.*

From *Saibán* to *Jedda* with an unfavorable wind, the voyage is performed from four inches to four inches by degrees in the following way. First from *Saibán* where the pole[10] wants a quarter to seven inches¶, you steer four *záms* N. W. and afterwards N. W. by N. If the contrary wind is very strong, the course to be steered is E. by N. and true east, or near it; if the wind is a middle one, you steer N. E. or N. E. by N. If in your measurement the inferior quadrant[11] gives an inch** and a quarter, the ship is on a spot distant seven inches (measurement) from the pole. If in this place the northern wind ceases, you may lay to or tack. If it blows a hard northern wind, you look for the Arabic coast, and go to *Badhiain*[12] or near it. On the sea side of *Badhiain* is a shoal *(amaria)*; that is to say, a place where you see the ground of the sea; with a weak northerly wind you go to *Mokammar*, or in the vicinity of it. The said islands are one near the other. If the pole is seven inches and a quarter, and the inferior quadrant seven inches††, and a strong northern breeze, you go to *Esman* and *Mesed;* and if there is but

[1] باب المندم [2] جبل زقر [3] سيبان [4] زام [5] عوا [6] كمران [7] رقبه [8] زشه
[9] اباعل [10] جاه [11] مربع تحتاني [12] بضيعين

* Assaban of maps, off Loheia, 15° 41′; long. 42° 52′.
† Saddle island in the Zebayers? ‡ Rasher? § Or Loheia.
‖ Dhalac island. ¶ See introductory remarks, = Lat. 16° 18′.
** This should be 7¼ inches. †† Lat 17° 6′.

little of a northern wind, you go to *Jihán* and *Ssail-ol-mathanat*[1]*. If the pole is made by seven inches and half, and the inferior quadrant wants a quarter to seven, and the wind blows strong from the north, you go from thence to *Khobat*[2], where some shoals are seen; with a little northern breeze you go to *Fossailiát*†; if the pole wants a quarter to eight, and the inferior quadrant shows six and a half, and the northern wind blows strong, you go to *Fossailiát*, where it is the best to remain, because on its sea and north side is infinite rubbish, that is to say, unclean places; with a weak northern wind you go to *Maassabah*[3]‡ or to the island *Lam*[4]. If the pole is made by eight inches§, and the inferior quadrant marks six and a half ($\frac{1}{4}$?), and the wind blows strong from the north, you go to *Darwish*[5]‖ or near it; if there is but little northern wind you go to *Zoo Shajeeh*¶, where much precaution is required on account of the bank *Sowaiá*[5]. If the pole is made by eight inches a quarter, and the inferior quadrant marks six inches, and the wind blows strong, you go to *Dakha Khein*[7] or to the island *Takshef*[8] or near it. With a small breeze you go to *Dánek*. If the pole is made with eight inches and a half, and the inferior quadrant marks six inches** less a quarter, and the wind blows strong you go to *Dánek*, and with a small northern wind to *Hareik Semár*[9]. If the pole wants one quarter to nine inches, and the inferior quadrant marks five and a half (Lat. 19° 30′), and the wind blows strong, you come to *Hareik Semár*, and with a small northern breeze to *Báher-zehár*[10], with a small northern breeze you come to *Homais*[11], where you stop. If the pole is made by nine inches and a quarter, and the inferior quadrant shows five inches, you go to *Homais*, with a small northern breeze you go to *Ráhel*[12], or near it. If the pole is made by nine inches and a half, and the wind blows strong, you go to *Majrádib*[13]†† or near it. With a small northern breeze you come to *Ssorúm*[14]‡‡ or near it; if the pole wants a quarter to ten, and the inferior quadrant shows four and a half, and the wind blows strong, you go to *Ssorúm*, and with a small northern wind you come to *Jedda*. If the pole is ten inches§§, and

[1] صبل المطحنته [2] خبت [3] مصعبه [4] لم [5] درويش [6] سويدي
[7] دخاخين [8] تكشف [9] حريق سمار [10] بحر الظهار [11] حميس [12] راحل
[13] مجراديب [14] صروم

* Matharhane. † Wassaliat. ‡ Massubah. § 18° 18′. ‖ Dorish.
¶ Doshagea. ** Lat. 19° 6′. Dahnak is in 19° 31′. Vid. sup.
†† Maharabi of the map, 20° 14′. ‡‡ Serome, on the coast of Elwon, or *Sarum* island of Horsburgh, 21° 9′. §§ Lat. 21° 30′.

the inferior quadrant shows four inches and a quarter, you go right east four *zâms* towards *Jedda,* if God please. Be it known that in the sea of *Jedda* you find as you find corals in the western seas.

THIRD VOYAGE *from Saibán (Loheia) to Sawáken**.

The way in which you perform a voyage from *Saibán* to *Sawáken* is the following. From the place where the pole is made with seven inches† you proceed in the same manner, that is to say: first, if the northern gale is strong, you steer E. S. E. and S. E. by E.; if there is but little wind, N. W. by W.; but the true way from *Saibán* to *Sawáken* is by *Jedda.* If the northern wind blows strong you go to *Mokaidah*‡, and with a small breeze to *Hawateb*[1] (the *Hatyas*) or near them. Be it known, that on the sea side of the islands of *Dahlek*[2] is an *amaria* (shoal) and an *ahja*[3], that is to say, *topook*[4] or rocks which are not seen; the most remarkable of them is the *Ahja Tamerkass*[5] on which the water is more or less than three fathoms deep; great precaution is necessary in all these places. If the pole is made by seven inches and a quarter, and the inferior quarter marks seven inches, and the northern wind blows strong, you go to the *Hawateb,* with a small northern breeze to *Harmal* and *Bent Antar*[6], or near it. If the pole is made by seven inches and a half, and if the inferior quadrant shows seven inches less a quarter, and the wind blows strong, you go to *Bent Antar;* with a small northern wind to *Harmal,* or it is seen at the left hand. Be it known, that from *Harmal* to the pole or N. by W. two rhumbs and a half is a shoal *Merai Aari*[7] called *Harbobat*[8], of which great precaution is to be ta ken. Going along the coast and the pole wanting a quarter to eight, and the inferior quadrant showing six inches and a half§, and the wind blowing strong, you turn to *Torbet Khassús*[9] or to the north side of it: if the pole is eight inches and the inferior quadrant shows six inches and a quarter‖, and the northerly wind blows strong, you go to *Batn Hobáb,*[10] with a small northern wind to *Aantab*[11]. If the pole is made by eight inches and a quarter, and the wind blows strong, you go to *Mandel,* and with a small northern breeze to *Jein*[12] or near it. If the pole is made by eight inches and a quarter you go true west

حواطب[1] دهلك[2] احجا[3] طپوق[4] احجاتمرقص[5] بنت عنتر[6]
مراى عاري[7] حربويت[8] تربت خصوص[9] بطن حباب[10] عنتب[11]
جين[12]

* *Suakin* by Captain ELWON's chart lies in Lat. 19° 4′, Long. 37° 30′.
† Lat. 16° 42′. ‡ Dhalac. § Lat. 17° 54′. ‖ 18° 18.

to *Tahtiát*[1] or it is seen on the right; if the north wind is but weak you go to *Tamarsheh** or *Zúlkafla;* on the left hand at some distance are seen some islands, as *Mosamara* and *Lauká*[2]†. If the pole wants a quarter to nine inches, and the inferior quadrant shows five and a half, and the north wind blows strong, you go to *Tamarsheh* or *Zúlkafla,* and with a small breeze to *Bár i Músa ssaghír*‡. If from *Bár i Músa ssaghír* you steer true west towards the continent, you go from *Sawákor* or *Bár i Músa Kabír* to *Matiyát*[3]. If the pole is nine inches, and the inferior quadrant shows five inches and a quarter§, and the wind blows strong, you go to *Bárkat*[4] or near it; from *Hind Jodr*[5]|| true west you go to *Maserkai*[6] ¶; this port is on the upper side of *Sawáken.* If the pole is nine inches and a quarter, and the inferior quadrant shows five inches, you go with a strong wind from *Hind Jodr* to *Sawáken;* with a small breeze to the superior part of *Sawáken:* where is nothing but mountains. Mark that if in these parts you go tacking with a north wind, the rule is to hold the middle between the Arabian and Persian (African) coast, and that if you side to one of them you never attain your object. On the south side the bank *Rás-eshabak*[7]** called *Háwi*[8] is opposite the island *Tamarsheh.* On the north side the end of *Shabak* is opposite *Bár i Músa.*

Fourth Voyage *from Jedda to Aden.*

The way of the voyage from *Jedda* to *Aden* is the following. If you start from *Mesmári* you go two rhumbs†† S. S. W., afterwards two rhumbs S. by W., afterwards two rhumbs to the south pole, turn then and steer S. E. by E. from thence you steer S. E. to *Zokar*‡‡. From *Zokar* you run one rhumb S. by W. afterwards S. S. E. to *Babel Mandam;* from thence one rhumb in the direction E. S. E., then E. by S. to *A'ara*[9], from thence you follow the direction E. by N. to *Adan* in *Yaman,* which is a celebrated port, and is commonly called the *Pearl Aden*[10], though there are no pearls at *Adan;* but as it is a great port, this name arises probably from its trade in pearls; in the same way you call the cocoanuts, which come from Bengal *Kabúlian,* because they come by the way of *Kabúl.* Cornelians of *Yaman* are found at *Aden* in immense quantities.

1 تحتيات 2 لوكا (Λευκη). 3 مطييات 4 باركت 5 هندجدر 6 مسركاى
7 راس الشبك 8 هاوي 9 عاره 10 عدن در

* Timershear, 18° 56′. † Dahreat Abged? ‡ Barmosa Segere, 19° 3′. 19° 54′; *Shab Barkoot* is in 19° 14′ || Hindee Geedam, 19° 21′.
¶ Mersa Arakea, on the coast, 20° 13′. ** Ul Shebek, 18° 44′.
†† Perhaps *zams.* ‡‡ Gebel Zoogar, 14° 0′.

FIFTH VOYAGE *from Sawáken to Aden.*

The way *Sawáken* to *Adan* is the following: The voyage may be performed in two different ways. From the 180th day till about the 230th of the *Yazdajerdian* year*, (beginning with the *Naurúz;*) that is to say, from the 45th day till to the 95th day of the *Jelaulian* year, when the sea-faring shuts; the voyage begins from underneath *Shabaka*[1] and you follow the coast till cape *Márát*[2]†; from *Márát* two *záms* true east, then two *záms* E. by S., then two *záms*[3] E. S. E.; from thence turning to S. E. you come to *Saibán;* if from *Saibán* you wish to make *Kamrán,* you go true east, till you see the islands of *Kotáma*[4] and *Okbán*[5]; from thence to *Kamrán* is the *Ssáheb Darke Robbán*[6]? If you sail from *Rakba*‡ one *zaum* towards the south pole you come to the mountain of *Zokar*§, and from thence you proceed in the same manner as it has been mentioned before.

The second way of performing this voyage is with the monsoon which sets in with the 280th day of the *Yazdajerdian* year (12th Aug.) which is the 145th of the *Jelálian,* or near it. Sailing from *Ratka*[7]‖ you steer right east, because in this season the south-western winds prevail. If you do not set out below *Shabaka,* set out from above it, going between the islands and *Shabaka,* till you are passed the sea islands, little *Bár-Músa*¶ and such ones, you follow the course of true east. As soon as the islands disappear you sail S. E. till the pole is marked seven inches and a quarter; you go then S. E. by E. to *Saibán.* This is the course with a favourable wind, but if it is not favourable it is quite different.

SIXTH VOYAGE *from Zailá*[8]** *to Kujurát.*

The way of performing it is the following. After having left *Aibán*[9] and after having passed the unclean places, you steer N.E. by E. till you see the mountains of *Aden;* from thence true east, till you lose sight of the mountains of *Aden;* from thence E. by N. three or four days; then E. N. E. If you do not see the mountains of *Aden* you go N. E. by E. till the pole marks five inches††; from thence in the manner above said. Be it known, that in *Gujerát* grow indigo, ginger, cocoa-nuts, tamarind, and the tree *Tári*[10]‡‡, each bunch of which gives every day a pitcher of wine; there is also the *Pawn*[11], that is to say, *tanbúl*

[1] شبكه [2] مارات [3] زام [4] كتامه [5] عكبان [6] صاحب دركه ربان
[7] رتقه [8] زيلع [9] عيبان [10] تارى [11] پان

* 7th May to 26th June. † Amarat, 18° 19′.
‡ Saddle island. § *Zoogar,* the *zám* must here be taken at one degree.
‖ Trinkatah? 18° 45′; another name for Shabak. ¶ Barmoosa.
** *Zehla,* east of Babelmandal, to Gujerat. †† Lat 13° 30′. ‡‡ The toddy palm.

trees, and a great number of *Túbau* trees *(Tuja)**, from the branches of which the bunches descend as roots; there are bats, the wings of which measure more than a yard; there is also a great number of *Zokúm* trees†, and an infinite number of parrots and apes, so that you might call it the country of apes.

Seventh Voyage *from Barbara*[1]‡ *to Gujerát.*

If you start from *Khorsaid*[2] you follow the direction N. N. E. till you come to where the measure is equal§, which has been explained in the former chapters, and from thence you proceed in the way above mentioned.

Eighth Voyage *from Aden to Gujerát.*

If you start from *Aden*, you go true east till you lose sight of the mountains of *Aden;* you continue to hold the same route a day and a night, then E. by N., till the southern wind sets in, then E. N. E. if possible, and if not, you follow the above course and go then E. N. E.; if th ere be little motion with the *Awelama*[3] (?) there is no harm in it; if a closer course is pursued you side to E. by N. and return from thence again to E. N. E., till the measure[4]‖ is equal; in this measure *Lyra*¶ is five inches, or *Sagitta*[5] six inches, or Canopus and Lyra are equal to three inches and a half. Under this measure (height) you see in the sea frequently sea snakes, which ought to be taken care of, as it is a good sign; if you do not see them follow your way in the direction right east till you see them, and then change again your course to E. by N. till you see land. The best rule is to trust to the soundings and not to the sea-snakes, which, if they prove true, show themselves twice and thrice a day. Be it known, that sometimes in the monsoon *Damíni* the ship is thrown by the current towards the Persian shore like mount *Koholád Dabbaghát*[6]; at this time the ship finds itself in the barbarian channel; there great precaution is necessary against the whirlpools; besides this place there are such between *Gujerát* and *Sind* in the gulph *Jakad*[7]**, where the wind blows continually from the sea, and the current comes from the shore, so that waves

[1] بربرة [2] خورسعيد [3] اولما [4] مارقياس [5] سهم اول [6] دباغات [7] جكد

* The *Bur* or Banian tree. † Seej or Euphorbia ligularia, Roxburgh.

‡ Lat. 10o 30′, Long. 45o 10′. § The *kiás* or 16° 54′. ‖ Lat. 16o 54′.

¶ There must be some mistake in these stars, as Lyra would have a meridional altitude of 68o 30′ and Sagitta much more. Canopus also could not be above the horizon along with *Lyra*, as in the given latitude this star only rises after Lyra sets; and it attains an elevation of 19° on the meridian.

** Point *Gigat*, at the entrance of the gulph of *Cutch*.

and contrary currents are not wanting, and a ship falling in with them runs great risk to be lost, if it is not saved by the grace of God; so it is necessary to avoid these places. You must turn from the Persian shore to the Arabian, and steer N. N. E. and N. E. by N. till you are out of reach of this dangerous place, after which you steer again E. N. E. Know that the wind of Canopus (S. S. E.) is not to be trusted till the pole is made with six inches or six inches and a quarter; the flood runs then true E. The signs of a tempest are great distress, and the summer birds called in *Yaman*, *ijám*[1], also the birds *bani safáf*[2] and *amm ul sanání*[3]; these birds keep then to the shore, flying in the summer on the sea; sometimes you see them till where the pole is made with nine inches, (lat. 19° 54′.)

NINTH VOYAGE, *from Kashan*[4]* *to Gujerát.*

If you set sail from *Leiben*[5] you follow the direction E. S. E. and E. by S. during night time, when for the most part the northerly wind ceases. From S. S. E. there is a heavy swell; therefore it is advisable to keep the high sea; if during night time the wind diminishes and you find yourselves at sea, lay to till the wind becomes fresh again; but if it be fair, you go twelve *zám*[6] true east, return then to E. N. E. till *Sagitta* is six inches or *Lyra*[7] five inches, or *Canopus* and *Lyra*† come equally to three inches and a half. If in this height you see really sea-snakes, you follow the course of E. by N. till land is seen. If the sea-snakes are not seen, you steer true east till you see them, and return then to E. by N. The sign of the presence of the sea-snakes are great numbers of birds, as the *Sowaidi*[8] and *koráni*[9]. In some years the sea-snakes and the birds *Sowaidi* are seen on the Arabian coast. If you are leaning towards the Arabian shore, and the pole is made with nine inches or near it‡, it is guessed that you are come near the Indian land; but this is not certain, because these birds do not deserve much credit, as some years they are seen, and in other years they are not seen; sometimes they are to be seen in great numbers, and sometimes but few.

TENTH VOYAGE, *from Khalafát*[10]§ *to Gujerát.*

If you start from *Khalafát* you keep the sea till you come to cape *Fartak*[11]||, from thence you run twelve *záms* true east, then to E. N. E. or E. by N., as it has been mentioned before.

[1] عجام [2] بني سفاف [3] ام الصناني [4] قشن [5] ليبن [6] زام [7] سلبار
[8] سويدي [9] كراني [10] خلفات [11] راس فرتك

* Kisseen on south coast of Arabia; Long. 51° 5′.

† Wrong stars, (vide supra) Dr. DORN calls Lyra *ulsalbak*, not *salbar*.

‡ About 20° N. Lat. § Maculla? || Cape Fartash, N. E. of Kisseen.

Eleventh Voyage, *from Zofár* to Gujerát.*

Setting sail from *Zofár* you go S. E. by S. or near it till you get into the open sea, into which cape *Marbát*[1]† stretches out a long way. From thence you go E. N. E. or E. by N. till you come to the *kiás*[2] (Lat. 17°) (the measurement explained in former chapters). At *Zofár* grow also cocoanuts.

Twelfth Voyage, *from Kálhát*[3] *to Gujerát.*

Setting sail from *Kálhát*‡ you follow a true eastern course till you see the sea-snakes, and if you see them, you return towards the coast, till *Lyra*[4] is marked by four inches and a half; from thence you steer true east till you come to the shore; this is the course performed with the monsoon *Azíb :* but at the time of other monsoons you follow the direction E. by S. till you are come to the *kiás* (measurement explained in the former chapters), from thence true east till to the end.

Thirteenth Voyage, *from Maskát to Gujerát.*

If from these ports you wish to make *Concan*[5], you follow the direction of E. by S. and east; if you wish to go to *Monembár*§, you follow the direction S. E. by E., you come then to the mount *Karata*[6], which is a famous mountain of *Monembár.*

Fourteenth Voyage, *from Aden to Monembár*[7], *(Malabar.)*

The course is the same which has been already mentioned before from *Aden* to *Gujerát ;* you go on till the pole marks six inches and a half or seven inches‖; if from thence you can go tacking, you go in the direction of E. by S. or true east; if it is impossible to keep this course, your way is E. by N, till the pole is made by seven inches and half or eight inches; from thence you follow the direction E. by S. till the pole is made with six inches¶, then true east till land is in sight, which is *A'zádíw*[8]** or a place near it; you steer then towards the shore; what is meant by the inches, *assabá*[9], and the pole or polar star *jah*[10] has been explained in the former chapters.

Fifteenth Voyage, *from Aden to Hormúz, (Ormus.)*

Sailing from *Aden* in the direction true east you see the mountains of *Aden,* and if you do not see them you steer in the direction of *Dairai Bar*[11] which is E. N. E. till *Fartak*[12], from thence five *záms*[13]††

[1] راس مربات [2] قباى [3] قلهات [4] سلبار [5] كنكن [6] قرطه [7] مونيبار

[8] ازاديو [9] اصبع [10] جاه [11] ديرهٔ بر [12] فرتك [13] زام

* Dofar, a little further east of Fartak. † Cape Morebat; Lat. 16° 50′, Long. 55°. ‡ Half way between Muscat and Cape Rasalgat. § Malabar.

‖ About Lat. 17°. ¶ Lat. 15°. ** Ajideeva near Ankola, lat. 14° 40′.

†† The *zám* here must be about 35 miles.

N. E. by E.; then N. E. to *Marbáth*[1] and *Mottúka*[2], (this last is called *Janjari*[3],) from thence you follow again the direction N. E. by E. taking care on your way of the island *Hausakeya*[4]*, because on its sea-shore is a shallow; it is necessary to come forth between *Súkara*[5] and the islands *Khár*[6] or *Múria*[7]†. After having found *Súkara* you sail five *záms* N. E. by E. then three *záms* N. E., from thence five N. E. by N. to *Mousír*[8]‡ you may see it or not; if you see it, you follow the same way till the island is left behind: from thence four *záms* to N. N. E. from whence you return to N. by E. till *Rasolhadd*[9]; from *Rasolhadd* you direct yourselves to the known *Dairai Barr*[10] till *Rás Mosandem*[11]§, from thence to the pole to *Hormúz*. The pearls for which *Hormúz* is famous are fished on the islands of *Kais*[12]‖ and *Bahrain*[13]. If you wish to go from *Rasolhadd* to *Dúlsind*[14]¶ you steer E. N. E. till you come to *Pasani*[15] or near it; from thence to *Dairai Barr*[16], that is to say, E. by S. till *Rás Karáshi*[17]**, where you come to an anchor, waiting for the fishing boats with which you enter the port. The ancient pilots used to sail from Cape *Alhadd* to that of *Karáshi* in the direction E. by N. but it is better to go with the higher wind.

SIXTEENTH VOYAGE, *from Diu to Meshkáss*[18]††.

The time for this voyage is from the tenth day after the *Yazdajerdian Nawrúz* to the 60th day (7th Nov.—27th Dec.) which is to say, from the 240th day after the *Jelalian Nawrúz* to the 290th. First you follow the direction W. by S. two *Terfa*[19], that is to say, two inches, which make the poles eight inches‡‡; from thence to W. S. W. one *Terfa;* if it is the time to measure the pole (to take the height by the polar star) you take it: if it not be the time for it§§ you take the height at the setting of *Aquila*[20]‖‖ by the *Lyra*[21] which gives

[1] مرباط [2] مطوقه [3] جنجري [4] حاسكيته [5] سوقره [6] موريا [7] خور
[8] مصير [9] راس الحد [10] ديرهٔ بر [11] راس مسندم [12] قيس
[13] بحرين [14] ديول سند [15] پسني [16] ديرهٔ بر [17] راس كراسي
[18] مشقاص [19] ترفه [20] نسرواقع [21] سلباري

* Hasek of maps. † Curia Muria. ‡ Mazeira island.
§ Cape Mussendan, at the entrance of the Persian Gulph. ‖ Kishma?
¶ Mouths of Indus. ** Kurachee on the northernmost mouth.
†† Maculla? or a place nearer Morebat? ‡‡ Lat. 18o 18′.
§§ This sentence proves that the meridional passage of Polaris was usually observed.
‖‖ The Arabic name of the star here translated *Aquila* by the Baron enables us to clear up the difficulty in former passages. In the description of the Arabic celestial globe by Dr. DORN (Roy. As. Soc. Trans. II. 381, the star النسر الواقع (the falling vulture) is shown to be *alpha lyræ*, or wega of the Alphonsine tables. The translation in the text, therefore, should be—"take the height of Polaris at the setting of *wega* (in lyra), i. e. of alpha lyræ.

seven inches and a half, then you steer true east to *Sájer*[1]*, the mountains of *Dain*[2]† are visible on the right; at this time of the year it is better to see them than to see *Fartak*, because the wind coming from N. N. E. is to be feared, which at this time of the year (it being winter) is much to be feared, as it raises great dust and waves. If you cannot attain *Sájer* you pass *Meshkáss;* if the polar star is seven inches and the ship at sea with a strong wind, turn again its head to the sea one or two days, according to the strength or the weakness of the wind; after the winterly wind sets in the monsoon *Azib*, and in this case you go back as much as you are come. If you start from *Diu* on the 70th or 80th day of the *Yazdajerdian* year (6th —16th Jan.) your way lies then in the direction W. S. W. till you come opposite the Cape of *Fartak*, which is the 300th day from the *Jelalian Nawráz* or the 310th. From opposite the cape *Fartak* you go true east; if the winterly wind blows, you haul down the sails and lay to, if possible; if not, you go with as little sail as possible to get the ship free of the waves. After the ceasing of the winterly wind the monsoon *Azib* sets in, in which case you measure back your steps as much as you have gone, and this season is better than the former. Some years the winterly winds blow till to the hundredth day of the *Yazdajerdian* year, which is the 330th day of the *Jelalian* (14th Feb.) particularly from *Fartak* to *Zofár;* the signs of land being near are the birds *Dhofaik*[3] and *Koraik*[4], and of the sea beasts or fishes; the *Tabbáka*[5] and *Lezák*[6], and of the maritime plants the *Kirmith*[7], and *Kelhaf*[8].

Seventeenth Voyage, *from Diu to Shehr and Aden.*

The course lies first W. S. W. till opposite *Fartak*, from thence true east till land is in sight; this voyage is performed within the tenth day of the *Yazdajerdian* year, and the sixtieth, that is to say, within the 240th and 290th of the *Jelalian* (7th Nov.—27th Dec.) if it is performed within the 80th or 90th day of the *Yazdajerdian* year, answering to the 310th or 320th of the *Jelalian* (16th Jan.—26th Jan.) the course to be held is W. S. W. till the pole is six inches and a quarter or six inches, then true west. If you set out from *Diu* on the 110th day of the *Yazdajerdian* year, which answers to the 340th day of the *Jelalian* year (15th Feb.), the course to *Meshkass* and *Shehr* is W. S. W. and S. W. by W. till the pole is marked by five inches and a quarter; from thence you run true west; at your right the island of *Socotra* is near in sight; as soon as you

[1] ساجر [2] جبال الدين [3] ضفيك [4] كريك [5] طباقه [6] لزاق [7] قرمط
[8] قلحف

* Seger. † *Doan* near *Fartak.*

see it, if you are bound to *Meshkass* or *Hírídji*[1]* you steer N. W. by W. and if you intend to go to *Shehr* you steer W. N. W. till you see land; the sign of your approaching *Socotra* is that you see of the sea-plants or an infinite number of trees of the species called *Kirmith*, but sometimes you see them and sometimes not; on the coast of *Shehr* men and animals live all on fish.

Eighteenth Voyage, *from Mahdim*[2]† *and Shiúl*[3] *to the Arabic coast.*

The time for sailing from these ports is from the tenth to the sixteenth day of the *Yazdajerdian* year, which answers from the 240th to the 290th day of the *Jelalian* year; the course to be followed is W. by S. till the pole is marked by seven inches, from thence you steer true west. If you intend to go to *Meshkass*, *Shehr*, and *Aden*, the course to be followed is W. by S., till you come opposite to *Fartak*, from thence you go true west to *Fartak*, and from thence to which port you please: if you set out from the above mentioned ports at the end of the season, the direction to be followed is W. S. W. till the pole is four inches and a quarter or four inches and an eighth, from thence you steer true west to *Kardafún*[4]‡. The ports *Mahdim* and *Shiúl* belong to *Deccan;* from this country come the muslins called *Candaharians*, and those of *Daulatabád*, *Berúpátari*[5], and *Bairami*[6].

Nineteenth Voyage, *from Diu to the islands of Díb*[7], *(Maldives.)*

Steer first S. S. E. the pole being made by five inches, side towards the land in the direction of E. S. E. and S. E. by E. till you see the mountains of *Monibár;* from thence to *Daira Barra*, till the pole is three inches; from thence to the south pole, till the *faráqad*[8]§ are eight inches and a quarter, then true W. to the island *Foyúka*[9], and the islands near it.

Twentieth Voyage, *from Daubúl*[10] *to the islands of Díb.*

You follow first the direction W. S. W. till you lose the shore, from thence to *Daira* S. W. by W. till land is in sight; from thence S. S. E. till the pole comes to three inches, from thence to the south pole and S. S. W. till the *Farkadain* (β and γ in the little bear) are marked by eight inches and a half; from thence true west to *Foyúka* or its neighbourhood. Mark what has been said above: till land is in sight steering S. W. by W., that means, that the land is at hand.

1 حيريج 2 مهايم 3 شيول 4 كردفون 5 بروپاتري 6 بيرمي 7 بزرالذيب
8 فراقد 9 فيوكه 10 دابول

* *Maculla?* and *Hargiah* near *Aden.* † *Mahim*, north, and *Sheoúl*, south of Bombay. ‡ *Guardafui*, N. E. Cape of Africa, lat. 12°.

§ The *farkadain*, or β and γ ursæ minoris.

Be it known to you that in some of the islands of the Maldives the inhabitants hunt with dogs, bred to the purpose, the Orang-ootang *(Nísnaus)* and eat it. The *Nísnaus* is an animal resembling a monkey, but endowed with speech; but generally monkeys are also called *Nísnaus.* I have heard from the brother of *Janúm Hamza,* the late Intendant of Egypt, that coming one day on commercial business at the extremity of *Yaman,* to a walled village, he alighted at a house where two boys lying on the ground were crying, and that out of commiseration he untied their fetters. The master of the house, returning, laughed at it, and said, these are *Nísnaus,* which we hunt. The next day the master of the house took his disbelieving guest with him, and he saw the *Nísnaus* hunted by dogs. Some *Nísnaus* emerge from the sea, their flesh is a great dainty; that they are endowed with the power of speech is even recorded in the books of philosophers.

Twenty-first Voyage, *from Diú to Maskát and Hormúz.*

The time of performing this voyage is from the 10th of the *Yazdajerdian* year to the 60th, (7th Nov.—27th Dec.) that is to say, from the 242nd day of the *Jelalian* year to the 290th; but you must continually go tacking, because the wind which is at this time of the year the monsoon *Azíb,* blows very strong; if it is impossible to pursue your course tacking, you must wait till the wind grows favourable, in which case you go till the Lyra[1] (?) is made by three inches and a half, and the land is at hand; because the interior pole is near the Arabian mountains; from thence you proceed true west to *Saatarí*[2]*, or its neighbourhood. If you set out on the 110th day of the *Yazdajerdian* year, which is the 340th of the *Jelalian* year, (7th Feb.) your way is W. N. W. till the pole is eleven inches; from thence true west till to *Tíb*[3], or its neighbourhood; but if you set out on the 150th or 160th day from the *Yazdajerdian Nawrúz,* which is the 15th or 25th of the *Jelalian* year (26th March), then you proceed W. S. W. and S. W. by W. till you see the island of *Socotra:* direct your course then towards the north pole till *Hausakia*†, from thence to *Daira* (E. N. E.) towards the Arabian coast; if the wind grows strong before *Socotra* is in sight, the western wind *Kús* you proceed tacking to N. W. by N. or N. W. or N. N. W. as you can till you see *Mottuk*[4], *Khúr*[5], or *Múria*[6]‡. If these places are not seen, you must take care of *Ghabbai-tin*[7]§. In order to avoid it, you put the head of the ship to the sea and go on. The sign that you

[1] سلبار [2] سعتري [3] طيب [4] مطوق [5] خور [6] موريا [7] غبه‌تين

* *Swardi,* near Muscat. † Hasek. ‡ Curia Muria. § Cape Isolette?

are near *Ghebba* is, that the water grows yellow; as soon as you see signs of land being near you must be in guard against it, till *Madreka*[1] or *Massíra*[2]*. If the pole is ten inches and a half, and land is not in sight, and no signs are seen; you have passed the Arabian shore, and then you have no chance but to steer for the Indian continent. You follow the direction E. by S. till the pole is ten inches to *Mangalor*† or *Soománát*‡ or *Shúrowaur*[3] and *Gúlinaur*[4]; but take care not to bring the pole to ten inches and a half, (22° 18′) in which case you necessarily come to *Jaked*[5]§ which is your damage and repentance too late. God be your guide! What is said of Indian whirlpools is all a tale, except the whirlpools in the gulph of *Jaked*, and in the Barbarian channel near *Kardafún*, where ships falling in are unavoidably lost; the causes of it are the heavy waves, the strong winds, the currents and the breakers of the coast, so that it is impossible for the ship either to hold the sea or to land on the shore, if God does not grant his particular grace. If you guess that you may be drifting to *Jaked* you must take before hand your precautions and endeavour to reach from the coast of *Makrán* either the port of *Kalmata*[6] or *Kawáder*[7], or *Kapchi Makrán*[8]; *Bandar Kawauder*‖, is the place where cocoanuts grow; or you must try to go to *Karaushi*¶ or to enter *Khúrdíúl Sind*[9]; that is to say, the port of *Lahore*, to get rid of the fear of *Jaked*. In Sind are a great number of liver-eaters, against whom you must be on your care; because if they meet a man who eats his dinner in public, they have the talent of eating up his liver with their eyes, and so kill him. This is not to be slighted.

TWENTY-SECOND VOYAGE, *from Cambeya to Aden at the end of the season.*

Cambeya is the district in the province of *Gujerát*, comprehending the ports of *Ahmedabad* ano *Patan*; from thence comes the cotton of *Patan*; and *Baháder* and some Indian stuffs. In this country is a profusion of *Babaghúri*[10] and cornelians: but the best of the last are those coming from Yaman. If you set out from *Cambeya* and come to *Diú* or its district, you must sail at night, because at the end of the season the wind blows from the west during the day, but during the night from the shore; with this land breeze you go as far you can towards the south. In some years the wind is a strong north western in the place of the *Maurara* (sea-snakes), then your course is

[1] مدركه [2] مصيره [3] شورواز [4] كولي نار [5] چكد [6] كلمته [7] كوادر
[8] كچچي مكران [9] خورديول [10] باباغواري

* Mazeira. † Mungrole, 21° 30′.
‡ Somnáth, Choorwaur, and Cooleynorky Pagoda.
§ Point Gigat, or Juggut, at the south-west corner of the Gulf of Kutch.
‖ One of the three Bunders on the coast of Gujerát. ¶ Korachee.

S. W. by W. Your measure (height) be the pole and no other, till the pole marks five inches, then you go W. S. W. till the pole is four inches and a quarter or four inches and an eighth, then true west to *Kardafún.* The signs of *Kardafún* being near are the birds *Karík*[1] and *Manji*[2], but few are seen of the last, those which are the most frequent are the *Daghát*[3] and *Kaslá*[4]; of sea animals you see the *Tábbáka*[5] (tortoise?) and sometimes the sea-horse; as soon as land is again at a distance these signs vanish: it is also probable that the birds here seen are those of Socotra, *Samaha*[6] and *Dorzán*[7]. God knows the rest. If at this time of your course *Socotra* is on the north, you direct yourselves to *Hadiai Socotra*[8], and if you go to *Kardafún,* your course is along the *Persian** continent. If you go from *Hejrát*[9]† to *Dárzin*[10] you steer W. N. W. and if you wish to go from *Mit*[11]‡ to *Aden* you steer true west till *Aden* is in sight, then you follow the current, *májri*[12], till *Báb Mándam.*

Twenty-third Voyage, *from Dábúl*§ *to Aden*[13].

If you leave *Dábúl* at the end of the season, you direct yourselves W. S. W. till the pole is four inches and an eighth, from thence true west to *Kardafún.*

Twenty-fourth Voyage, *from Kúwwai Sindabúr*[14]†† *to Aden.*

If you start from *Kúwwai Sindabúr* at the end of the season, take care not to fall on Cape *Fál*[15], because it is five inches and a quarter on the pole; steer therefore W. by S. till the pole is four inches and an eighth, from thence true west.

Twenty-fifth Voyage, *from Hennúr*[16]‖ *and Báudaklaw*[17]¶ *to Aden.*

If you leave those two ports at the end of the season, go from *Azádiú*[18]** or *Angúli*[19] side-wards, and then turn to the sea true west, if the wind be favourable; if not, direct yourselves W. by S. or W. by N. your utmost being S. W. by W. If you cannot attain any of these directions, turn and steer to the pole till the wind grows favourable, then turn again and steer W. by S. till the pole is made by four inches and an eighth, so you come then going true west to *Kardafún:* the vicinity of Cape *Fawl* is known by the quantity of birds and a

[1] كريك [2] منجي [3] داغات [4] كسلان [5] طباقه [6] سمحا [7] درزان
[8] هديه‌سقطره [9] هجرات [10] دارزين [11] مبط [12] مجري [13] دابول
[14] كوه‌سنداپور [15] راس‌الفال [16] هنور [17] بادقلا [18] ازاديو [19] انگولي

* African. † Harjieh? ‡ Mette, west of Guardafui.
§ South of Bombay, lat. 17° 45′. ‖ Honawer on Malabar coast, 14° 15′ lat.
¶ Bhatakuli or Betkuldrúg, ditto, 14°. ** Aujídeeva, off Ankola, lat. 18°.
†† Probably *Cotuale Sonderbaut* of Arrowsmith, north of Goa.

great quantity of *Kálháf*[1] that is to say, *sea foam* and *Kermet*[2], or sea trees.

TWENTY-SIXTH VOYAGE, *from Calicút to Kardafún.*

If you sail from *Calicút* with a favourable wind, steer W. by S. and sometimes W. S. W. so you come to the island *Kolfaini*[3]* ; if at this time, that is to say, on the 140th day of the *Yazdajerdian* year, which is the 5th of the *Jelalian* (March), the sea shuts, the flood runs at this time N. N. W. from thence you direct your course to the south pole, and go tacking if the flood runs to the south pole, but if the wind falls lower, then this course to S. W., S. W. by S. and S. S. W. you may follow it a day and a night without inconvenience. If it should fall yet lower, turn and steer to the north pole or near it, particularly if the pole is made by less than three inches (lat. 10°), because it is profitable to be then high north, and the wind grows favourable ; if it be already so, you run from *Calicút* till *Kolfaini* two *záms* in the direction of W. by S., then eight or nine *záms* W. S. W.† then you may rejoice, as you have got clear of the islands of *Fúl*, from thence W. by N. and W. N. W. till the pole is four inches and a quarter, and then true west to *Kardafún. Calicút* is famous for its pepper plantations : its Prince is the *Súmerú*‡ who is at war with the Portuguese. On these coasts are a great number of elephants employed in dragging ships, launching them into the sea, and similar doings.

TWENTY-SEVENTH VOYAGE, *from Diú to Malacca.*

Leaving *Diú* you go first S. S. E. till the pole is five inches, and side then towards the land, till the distance between it and between the ship is six *záms ;* from thence you steer S. S. E., because in the neighbourhood of Ceylon, the sea runs high, the further you keep off the more quiet the sea grows ; you must not side all at once but by degrees, first till the *farkadain* (β and γ in the little bear) are made by a quarter less than eight inches, from thence to S. E. till the *farkadain* are seven inches and a quarter, from thence true east at a rate of 18 záms, then you have passed Ceylon. The sign of Ceylon being near is continual lightning, be it accompanied by rain or without rain; so that the lightning, of Ceylon is grown proverbial for a liar. After having passed Ceylon you go E. N. E. and E. by N. till the pole is made by two inches, from thence true E. till to the island of *Sarjal*[4] which is one of the *Nájbári* (Nicobarian) islands. After having left it behind you steer E. by S. till land is in sight, you go along it to the islands *Falúsanbílen*[5]§ which are nine islands ; from thence to

[1] قاحف [2] قرمط [3] كلفيني [4] سرجل [5] فلوسنبيلن

* Calpeni, one of the Laccadives.

† This course is the "nine degree channel" through the Laccadives.

‡ SHAH AMIR? of the Bider or Ahmedabad dynasty, A. D. 1505—49.

§ Pulo Sambelan or the "nine islands" on the Malay coast, lat 4° 5'.

the south pole. At your right some islands are seen at a distance, so you go towards the south pole till you come to the islands to *Folodjomra*[1]* which appear near, from thence E. S. E. where the sea is more than ten fathoms, if it be 11 or 12 never mind, because after 12 is the deep sea, and you are clear of the *Shob Kafaussi*. You go till mount *Folúpásalár*[2], is opposite, N. E. till the soundings give 24 fathoms, because there is a bent *sháb*[3] running out in the sea, which is to be taken care of—wherefore your course must be followed always in a depth of 24 fathoms till you see the mount *Folúpásalár* N. N. E. ; then you steer towards the land and *Dairai-barra* (E.N.E.) till Malacca. The inhabitants of *Shuli*[4]† (?) go from *Falúsanbílen* two záms to the south pole.

Twenty-eighth Voyage, *from Diú to Shátijám*[5]‡, *i. e. to Bengal.*

Sailing from *Diú*, your course, till you have left Ceylon behind you, is the same as the above mentioned, then you steer N. E. Ceylon remaining on the western side ; then N. E. by N. till you come opposite to *Rakanj*[6]§, where the pole is made with a quarter wanting to nine, and the *Aselli* scarce with six inches ; if in this course you see land it is well ; if not, steer E. N. E. till the pole is nine inches and a half, so you come to the island of *Dardiw*[7]. If you see it at this time it is well, if not go right east till you see land, but take care of *Fesht Hayumiún*[8]||, which is a desert rock, round which the water is twenty fathoms deep; take care also of *Dardiw*¶ where the water is but five fathoms. If *Rakanj* is in sight, go N. N. W. with 25 fathoms of water. At this time *Hayumiún* remains on your right, of which great care is to be taken. After having passed it you approach the land till your soundings give 16 fathoms, and with this course you come to *Dardiw ;* after having left it behind you go with 12 fathoms depth N. N. W., there you come to a great *Khúr*[9] (?) called *Bákál*[10]**, and then five capes which are taken for islands by those who don't know them ; then comes a *Ghobba*[11], that is to say, a gulph full of shallows, shoals and breakers ; this place is called *Kákar Diwá*[12]††, then you come to the island *Zenjilia*[13]‡‡ which is facing

[1] فلوجمره [2] فلوپاسلار [3] شعب [4] طايفه‌شوليان [5] شاطي‌جام [6] ركنج
[7] دردیو [8] فشت‌هيوميون [9] خور [10] باكال [11] غبه [12] كوكرديوا [13] زنجليا

* The Arroas islands. Mt. *Parcelar* is a well known land mark on the coast, lat. 2° 50′. † The Sholas or Marhatta traders ? ‡ Chittagong, once a place of great trade. § Arrakan, lat. 20° 10′.

|| Probably Oyster island, a barren rock off Arracan, or St. Martin's reef.

¶ Probably *Nardiel* or Narkol deap of Horsburgh, off the *Tek Naaf* entrance.

** Probably *Mascall* island. †† Cutub-deep, south of Chittagong.

‡‡ There are now no islands seaward of the Chittagong coast to which the sailing directions of Sidi will apply : but Lieut. Lloyd, of the Indian Navy, who has surveyed this line, informs us that there is a long shoal called "the patch," parallel with the coast, which is nearly dry at low water, and may have formed the islands of Zenjilia three centuries ago ; for there have evidently been great changes in these parts, even in the memory of our own navigators.

you, your way lies N. N. W. When you approach this island, side to the sea, because its southern cape is *rikk*[1], that is to say, a shallow, and the colour of the water grows white; meanwhile, on the sea side it is seen green. Hold that course, and you'll find better soundings by degrees till you come to 17 and 18 fathoms. Coming to this place you find the water again whitish, these shallows are on the south side of *Fesht Gúrián*, which is a desert place: here the sea is noisy, don't keep either too near to the island of *Zenjilia*, nor too far from it, but steer a middle course; if the soundings give 18 fathoms or near it, you have passed *Zenjilia;* then you go in the direction of the north pole, and continue to take soundings till you come to seven fathoms; from thence you steer in the direction of the north pole, and to the rising place of the β and γ of the little bear, till your soundings are six fathoms but not less. So you come to cape *Khúr** which is *Shátijám.* Here you stop till the *rebbán*[2] (tide) come, with which you enter the port. Bengal is abundant in ivory and ebony; the finest muslin turbans, the very best *jutár*[3]†, and most precious Indian stuffs come from thence; the finest muslin sashes are called *malmal*[4], and the most precious of them *malmali-sháhí,* which by confusion is generally named *marmare-sháhí* (royal marble); there are also sea-bulls[5], the best of them are found between Bengal and Delhi in the interior lake; they are called *sea bulls,* although they don't live in the sea, but in the interior lakes on the land; but the merchants call them so; for in the interior northern lakes, in the mountains of the Afgháns, are also found the rhinoceros (*Karkadán*[6], the name quite the same as the *Krokotos* of Ctesias), but their horns are but two palms long; it is related that those which are found in Abyssinia have much longer horns. Girafes are found but in Abyssinia and never in India.

TWENTY-NINTH VOYAGE, *from Malacca to Aden.*

Starting from Malacca you go first along the coast till to the mountain *Folúpásalár*[7]; there you take care of the above-mentioned bank[8]. This mountain is seen in the direction E. by S., and on some distance you see *Folúdjomar*[9]; after having left it behind you your direction is that of the north pole till you come to the islands *Falúsanbílen*‡, from thence you steer for some time N. N. W. till you come to the islands *Firak*[10]§ and *Yaflúbotof*[11]‖, from thence W. by N. till to the island *Nájbán*[12], from thence W. by S. till the *farkadain* (β فلوپاسلار [7] كرڭدان [6] كاوقطاس [5] ملامل [4] جوتار [3] زبان [2] رق [1] شعب [8] فلوجمر [9] فيرك [10] يافلوبتف [11] ناجبان [12] (Nicobars)

* The word *Khúr* used here and elsewhere seems a corruption of the Bengáli term *khál*, creek or estuary.

† *Choutar*, a fine cloth, so called from its four threads.

‡ Pulo Sambelan of the Straits.

§ Probably *Pera* on the Malay peninsula, or Penang?

‖ Pulo Bouton.

and γ of the little bear) are made with a quarter less eight; from thence true west, Ceylon being in sight at the right; if you don't see it, continue nevertheless your western course till to the Maldives, and from thence to W. N. W. siding a little to N. W. by W. till opposite *Kardafún,* and till the pole is made by four inches and an eighth, from thence true west till you reach the land.

Thirtieth Voyage, *from Shátijám, (Chittagong,) that is to say, from Bengal to the Arabian coast.*

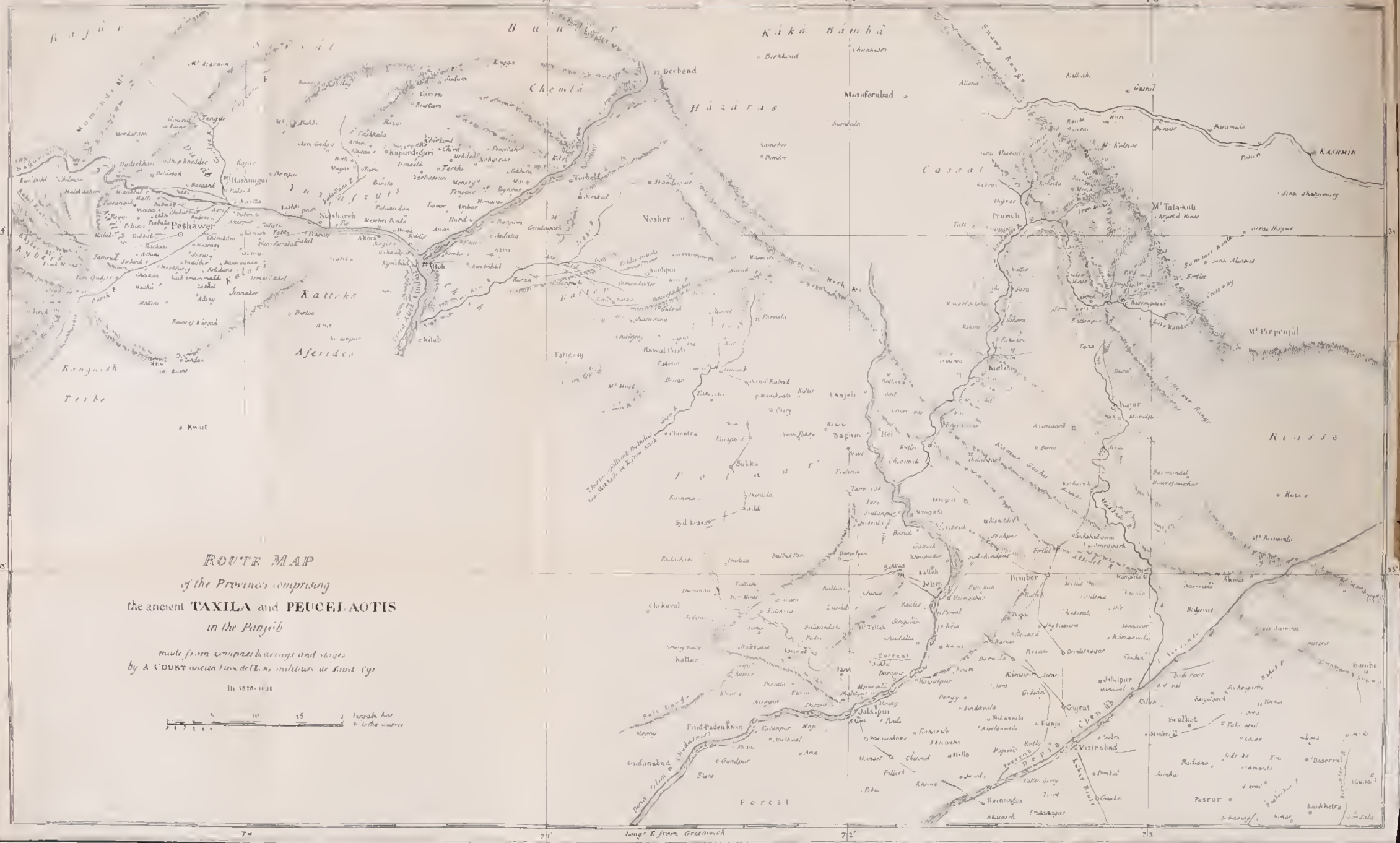
Sail at the end of the *madd* (flood), that is to say, when three quarters of it are passed, and go then with the ebb W. by S. two záms, the soundings being six, seven and eight fathoms; weigh the anchor as soon as the flood sets in and go to the wind, weak or strong, till the ebb begins again one zám W. S. W. then two záms N. W. The water grows then black, and you direct yourselves S. S. W. till the *Farkadain* are made with eight inches less a quarter, from thence true W. Ceylon being in sight on your right, you continue true W. till to the Maldives, and from thence to *Kardafún* in the way above mentioned. The measure of the stars (the taking of the height) and the distance of the inches has been explained already.

II.—*Extracts translated from a Memoir on a Map of Pesháwar and the country comprised between the Indus and the Hydaspes, the Peucelaotis and Taxila of ancient geography, by* M. A. Court, *in the service of Mahá-rája Ranjít Singh.*

I.—On the Province of Taxila.

The space lying between the Indus and Hydaspes was first known to the Greeks under the name of *Taxila:* whether as its ancient local title, or one given by the soldiers of Alexander from the town of the same name, afterwards its capital, is uncertain*. Strabo says that the

* Col. Wilford identifies the *town* of Taxila with the *Tacsha-sila* of Hindu ancient geography, of which the extensive ruins were supposed by Elphinstone to be traced at Manikyala. The *Tacsha Sáila* or *Syála* tribe are still numerous in the Panjáb. They state, the former name of their city to have been *Uda-nágari.* (As. Res. VIII. 42.) There is deposited in the Asiatic Society's collection a large manuscript map of the Panjáb compiled by Col. (then *Lieut.)* Wilford from the route and compass surveys of a native, Mirza Mogul Beg, expressly instructed by himself and employed from 1786 to 1796, in travelling and collecting materials to illustrate an account of Alexander's progress; the account however does not seem ever to have seen the light, and it is probable that the map has thus suffered oblivion. It is considerably fuller than M. Court's Sketch, and as might be expected from the Compiler's learning, more correct in the orthography of names. We regret not having collated the two before lithographing M. Court's map.—Ed.


ROUTE MAP
of the Provinces comprising
the ancient TAXILA and PEUCELAOTIS
in the Panjab
made from compass bearings and stages
by A. COURT
in 1828-1835
Kaka Bamba
Chemla
Hazaras
Peshawer
Nushareh
Attock
Kattaks
Aferidee
Yusufzyes
Yosher
Derbend
Muzaffarabad
Caserai
Punch
Kashmir
Mt. Tatakuli
Mt. Pirpunjal
Kajur
Rajasse
Bangash
Tribe
Forest
Jalalpur
Pindadenkhan
Jhelum
Bimber
Gujrat
Vizirabad
Sialkot
Pasrur
Chenab
Longr E from Greenwich

native kings assumed the name on mounting the throne; and we find in history ALEXANDER obliging OMPHIS, who governed the country, to take the name of TAXILES. The appellation is quite unknown at the present day.

It appears that the Greeks confined Taxila proper to the central part of the region between the Indus and the Hydaspes; for when they passed it, the northern portion was ruled by chiefs independent of OMPHIS, while the south was in open opposition to both ALEXANDER and his ally.

The geographical limits of Taxila are well defined on the map, by the two rivers and the chain of *Pirpanjál* on the north;—from this range to *Kosháb* on the south it measures 120 kos, with a breadth from *Attok* to the *Jelim* of 74 kos*.

It seems probable that the original inhabitants were Hindus of the *Pandava* race, and *Chandra-vansís*. With these were amalgamated Persians, Scythians, and even Greeks; for the *Ghékers*, of whom so much has lately been written, I take to be the descendants of the Macedonian colonists;—they themselves trace their ancestors to the *Khaiani* race of Persia, but the word seems but a corruption of *Greek*.

Taxila contains the traces of a number of ancient towns of which the origin is now unknown. Massive walls of stone masonry are seen, and in some places brick work of Babylonish dimensions. The inhabitants call them the ruins of temples of *Deva Nagari*† or *Sita-Ráma*. The most curious, however, are the mausolea, cupolas, or topes. In the northern provinces are found colossal statues of plaster, marble, and stone, most of which have been mutilated by the bigotry of the Muhammedans. Smaller idols are also occasionally dug up of superior execution: some I have remarked with frizzled hair. The ancient religion of the country was Buddhistic. The worship of Bacchus, or the Sun, prevailed at the time of ALEXANDER, and traces of it are visible in the names of towns, as *Surya*, *Sita*, and *Causalya;* the sun, his daughter and mother (?)"

The present inhabitants, being of so mixed an origin, betray striking varieties of character and manners. The Musulmans who border the Hydaspes resemble perfectly the Hindus of the *Panjáb*,—while those on the east bank of the Indus have all the peculiarities of the Afgháns, whence they are descended—an elegant figure, pleasing features, and vivacity of expression. They are loquacious like the Persians:—and though living in servitude, they retain their national pride, and submit

* Col. WILFORD's map states that the *kos* of this part of the country varies from 10 to 22 furlongs, probably 2 miles will be a fair average.—ED.

† Doubtless the *Uda-nágari* of WILFORD; see note to page 468.—ED.

only to the authority of their chiefs, with whom they live on terms of equality. "I have everywhere witnessed their courage and intrepidity, in their encounters with the Sikhs, on whose bayonets they rush sword in hand. Against the Hindus a fierce and implacable bigotry is kept up among them by their *Mullas*, whom they regard with superstitious reverence. They retain many traits of hospitality: are blunt, coarse in manner, and devoid of the polish of the Persians. Their dress is a long shirt, blue turban and scarf, which serves the secondary purpose of a cloth to pray upon. Their women are allowed comparatively much liberty, but do not abuse it: they perform as usual the whole labour of the household, while the men are in the fields. Their houses are constructed of mud roofed with timber, and again covered with earth to keep off the rain. The tribes of the plains, having a fine fertile land, are in good circumstances; but those of the *Putwár*, *Thenni*, and *Khibbi* districts are sadly oppressed by the Sikhs. The mountain tribes along the west bank of the Hydaspes are in a half savage state. Most of them live only by plunder and robbery, and think as little of cutting a man's throat as a sheep's. Travelling alone amongst them is most hazardous.

"The language of Taxila proper is the Hindustaní corrupted, which pervades the Panjáb: in the north, *Cashmerian;* and on the Indus the *Pashtú* dialect, peculiar to the Afghán tribes. The Persian is little used, except among the informed classes.

"The principal towns in the southern division are *Rawel Pindi*, *Jèlam*, *Pínd-dádan Khán*, *Nillé*, *Fatehganj*, *Khibbi*, and *Makhade*:—in the central division, *Attok*, *Khampur*, *Iskanderpur* and *Noachir*:—in the northern, *Muzafferábád*, *Birrh*, *Pakkheli*, and *Kaka Bamba*."

M. Court describes minutely the whole of these and other remarkable places, repeating under the head of *Manikyála* the account of his interesting operations upon the *topes* there, which was published in the Journal for 1834. We have lithographed his sketch of the principal tope opened by M. Ventura and his ground-plan of the place (Plate XXVI.) to shew the situation of the numerous ruins with which it is studded, and which he considers to be the sepulchres of ancient kings. The following explanation refers to the figures on the plate:—

1. Chief Cupola explored by General Ventura, (J. A. S. 1834.)
2. Cupola whence were obtained the coins and relics described by M. Court in the same Journal for 1834, p. 556.
3, 4, 5, 6, 7. Ruinous topes of which the foundations have been dug up.
8. Cupola in which M. Court found an urn enclosing a glass prism.
9. Cupola wherein was discovered a box containing a bit of ivory.
10. Small mound whence were dug up fragments of bronze images.
11. Cupola which contained an urn of baked clay.

12. Square buildings attached to many of the Cupolas.
13. Tombs.
14. Mound from which were extracted many medals of copper and of caracoly (a compound of gold, silver, and copper.)

Pl. XX. represents what M. Court denominates a "symbole," also found among the extensive ruins of this curious place. We do not find it particularly described, but, from the general appearance of the sculpture it may be regarded either as a Buddhist or a Mithraic monument—probably the frame of some picture or shrine of a temple: and it is peculiarly interesting from the collection of symbols in the upper horizontal line, almost all of which can be recognized as belonging to the series of ancient coins about which so much has been written. The jar, the *swastica*, the sun, the altar, and especially the penultimate object on the right hand, which is common on the Kadphises coins.

All the country commanded by the elevated summit of *Manikyála* is much raised above the plain of the Panjáb. It appears to have been anciently a vast plateau, that in the course of ages, from the gradual action of periodical rains combined with occasional earthquakes, has been cut into deep ravines now difficult to traverse, which make it look like a heap of ruins. It is covered with villages, the inhabitants of which raise a thin and precarious crop on its very poor soil. The neighbourhood of the mountains is covered with a thorny and leafless jungle.

The whole district is called *Potwár;* it was formerly very populous, as at least testify the numerous ruins of old habitations. The villages are said to have run into one another, forming a continuous line for 16 kos from *Manikyála* to *Tammiák.* The mulberry and other fruit trees used to thrive in its gardens.

The ruins of *Ramma* are at 13 *kos* S. S. W. from *Manikyála:* they are attributed to Sitá Rami (?) Those of *Parvala,* traced to the time of the *Pandavas,* are on the north at 12 kos. At the latter place, in the gate of an old castle, is an inscription in an unknown character.

Traces of a very ancient town, *Dangèlí,* are met with 14 *kos* towards the east: the inhabitants ascribe its origin to the *Diws.* It flourished under the *Ghiker* sovereigns, who resided there. *Makkyala* near *Kattas, Benda* and *Pakhi* were also *Ghiker* towns. The modern town of *Bégram* is five kos lower down than *Dangèli.* It is now inhabited by *Chandra-vansis,* who are descended from the former rájas of the country.

In the neighbourhood of *Jelim* (a modern town of the *Peruzan* zemindars) are the extensive ruins of another castle perched on the top of an artificial mound, where very old Hindu medals are found.

The inhabitants assert that a city surrounded it called *Bidad-nagar*, which through the wickedness and cruelty of the *rája* was destroyed by an earthquake,—a fact borne out by the appearance of the mound. This hillock had been in generations past dug up in search of coins and relics. The walls were of brick, very massive and large: there were two or three reservoirs and some wells within the enclosure, one built of stone. The Cashmerians for twenty-five years have been in the habit of digging here, nominally for bricks, but evidently from their eagerness they have fallen upon more valuable spoil: the chief of *Jelim* has several times confiscated pots of copper and silver coins thus dug up. The greater part of these have a horseman on one side and a bull on the other*. At one time a number of squared blocks of red granite were dug up, and some door posts which have been since converted into objects of worship by some *Udási faqírs* on the banks of the Hydaspes. One of them is sketched in fig. 2 of Pl. XX, and is seen to be the door post of a Hindu temple†. The fellow of it is set up at *Khallíh*, three kos N. N. W. of Jelim, by some *Ben-bába* faqirs. M. Court imagines this spot to have been the site of Bucephalia; and he would fix Nicea at *Patti-kuti* near *Vessa*, three *kos* E. of Jelim. In his opinion *Jelim* and *Aurangábád*‡ are the only positions in which two numerous armies could have encamped to dispute the passage of the river. Moreover, not a vestige of an ancient town is to be found on the west bank of the Hydaspes from *Kala Mangala* to *Dírapur*, except at *Sultánpur*, where the river debouches from the hills. In face of this spot is the fortress of *Kala Mangala*, attributed to Rája Sarwan. The opposite bank is too broken for Porus to have manœuvered his chariots. Below *Sultánpur*, at the small hill of *Barúti*, the inhabitants assert a bridge of boats formerly existed. Two kos further down, at *Menar*, are seen the remains of a castle of very great antiquity: the river once washed its walls, but has now retired half a league. It is accounted the customary place of crossing the river in former days.

* This description is insufficieut to determine whether they are of the Azos group, or whether of the Rajput series; but as they are called above, *Hindu*, we presume the latter must be the case; and this will account for the large quantity of these coins procured by Keramat Ali and Mohan Lal in the Panjáb. It may also account for the inscription *Syálapati* on one series of them—"lord of the *Syálas*," whom Col. Wilford fixes as the people of Taxila, (see above.) —Ed.

† Capt. Burnes describes a *fluted* pillar with a capital very like the *Corinthian* order shewn to him by M. Court. He says also, that the inscription on the slab was in the Arabic character. Travels, i. 58.—Ed.

‡ Erroneously written *Uzengabad* on the map:—and *Morungabad* of Wilford.—Ed.

M. Court recognizes the place of Alexander's passage at *Khilipatan,* where is still the principal ford. It is five kos from *Jelim,* the Bucephela of our informant: agreeing with the passage in history, "Alexander wishing to pass the Hydaspes, ascended four leagues higher up than where he had encamped, and there crossed his army at an island which facilitated the passage." This island is the one in face of *Khilipatan,* for at the village of *Gitiali* the river divides into two branches, one running towards *Jelam,* the other towards *Sukchandpur.* They enclose a large plain of cultivable ground. The western branch is only fordable in November, December, and January: it divides again into two branches at *Khilipatan,* thus forming several large islands, the largest being two leagues long by one broad:—the river beds are pebbly, and the current strong. The plain continues for four kos up to the ruins of *Patti Koti;* and here, doubtless, Alexander must have had his encounter with Porus' son, and with that prince himself, who came to his aid. All that Plutarch says of the passage and of the towns founded by Alexander, tallies well with the above explanation.

The celebrated fortress of *Rotas,* now unworthy of regard in a military view, presents little beyond Muhammedan tombs and mosques in its ruins. There are, however, Hindu medals found there, but the particular class is not mentioned.

Pind-dáden Khán, a modern commercial town, is the great mart for the rock salt of the mountains on the west, now monopolized by Ranjit Singh*. Other ruins of an ancient town, *Gagirakhi,* extend along the banks of the Hydaspes from near *Jelálpur* to *Dárapur.* On leaving the district of Pind-dádan Khán by the route which traverses the salt range, the site of an Indian annual pilgrimage occurs, called *Kattas.* Here again are the traces of an old town ascribed to the *Pandavas,* where are found small images of a red stone, holding in their hand the *toppa* of the Persians,—a species of iron club which would appear to have been a weapon of offence formerly in use. Alexander was wounded by one in his attack on the fort of the Malli.

The district of *Thenni* bordering upon that of *Pind-dádan* is famous for its breed of horses and mules. After passing *Chekuvál, Nilli* and *Dula* on the *Suban* river, a ruined castle is pointed out where the sovereigns of old used to keep their treasure. Medals are here found

* See the description by Burnes in his Travels, vol. i. 52, and in the Journ. As. Socy. ii. 365.—Ed.

in the ruins. The whole country is indeed remarkable for the number of antique ruins it presents: the most striking are those of *Tatta* and *Ris:* those of *Kounda* are attributed to rája Hoddi (?).

At *Jend,* 12 kos from *Khébbi,* towards *Kushálgarh* is a small gold-washing. *Fatehganj,* a very old town, is remarkable for its sulphureous springs: *Hassan Abdál,* for its picturesque situation and pure waters: the remains of a palace built by Akber here are still visible: it is on the high road from *Attok to Lahór.* Of these places it is unnecessary to speak, as they have been fully described by Burnes and other travellers; nor have we space to extract M. Court's notes on *Khanpúr, Skanderpúr, Naucher,* &c. Near the former place General Ventura opened several cupolas, and a large one at *Páhler* was explored by the native chief.

Of the district of *Pakhéri,* called by Forster *Pukholi,* this author would make Peucelaotis of the Greeks. This M. Court refutes, placing it (as noted in the memoir published last month) near *Bajore* (Bazira of the Greeks) on the west bank of the Indus.

We must also take but a very cursory view of M. Court's remarks on the physical geography of Taxila, hoping to see the whole published ere long in the Paris Journal, with the advantage of the comments of savans acquainted with the ancient history of the province.

The mountainous tract to the north of the district boasts the boldest and most romantic scenery. It is the link between the *Pirpanjál* range and the *Hindu-koh.* In the winter months there are but two or three passes practicable for foot passengers, and that with much hazard. Parallel ranges of less elevation occupy the southern face of the principal mountain ridge for a space of 40 to 60 *kos,* forming between them the successive valleys of *Kakabamba, Pakkhéri,* and *Mozafferábád.* Detached and irregular mountains and ridges cross the main chains at various angles, or form insulated groups, as is shewn on the map. There seem to be two principal lines of upheavement, which it would be abundantly curious to examine geologically on the principle of contemporaneous origin of parallel ridges started by M. Elie de Beaumont. The most interesting lines are the metalliferous hills N. W. of the Hydaspes, in general low, savage and uncultivated, but rich in ores. Ferruginous, sulphureous and saline springs are plentiful, but are not now turned to more use than the mines, which were apparently worked in former times. The Hydaspes formerly paid tribute in the gold of its own tributary streams. The Pind-dádan chain has abundance of iron. At *Karengéli* near *Kattas* are mines of antimony:—in the *Gulríh* range, native sulphur: near *Makhodi,* native alum: and at *Pind-dádan,* the salt mines before mentioned.

The vault of the large salt mine fell in shortly after the visit of M. Jacquemont. The section shews well the position of the salt, which is, in fact, a solid rocky mass : towards the upper part it divides into veins of white and red :—the latter are preferred ; the former containing lime and gypsum.

The western mine is greater in depth, but less extensive than the other. 250 steps were counted before reaching its focus :—the shafts were only wide enough for one person to pass at a time, each carrying a flambeau. The excavation is divided into two vaults ; one is now abandoned, being cut away to a dangerous precipice.

The lamps rendered the air and heat nearly insufferable when Messrs. Wade and Murray visited it in company with M. Court.

On the surface of this chain are scattered large blocks of gypsum, worn as if by the action of the sea. Some yellow slates are also seen. Vegetation is confined to saline plants and a few thorny bushes.

Of the Indus and Hydaspes sufficient is already known. Danville has fallen into an error in making the former pass by *Hashtnagar*, which lies on a small tributary called the *Jind*.

The climate of Taxila embraces extremes, from the healthy bracing cold of the snowy mountain to the excessive heats of the southern plains. The soil of the southern portion for want of water, as well as from the presence of salt, is little adapted for cultivation, and the villages are consequently very scant. In the beautiful valleys to the north, however, plentiful springs and a rich soil produce the opposite effects of fertility and a dense population ; but agriculture is neglected through the oppression of the Government. The perpetual verdure of the hills to the north affords abundant pasturage for cattle.

II.—ON THE PROVINCE OF PESHA'WAR*.

Peshâwar, the city, supposed by some geographers to be Peucelaotis, of the Greeks, is said by its inhabitants to be built upon the ruins of the ancient *Baghram*. In dimensions it certainly much surpasses *Cábul*, but its suburbs and the number of gardens which extend southward, contribute towards this apparent magnitude. Its houses are slightly built of brick or mud, held together by wooden frame work. This mode of building has, perhaps, been adopted on account of the earthquakes, which are frequent, but seldom very serious. The houses are generally provided with *Sard-khânas*, a description of cellar or underground room, where the inhabitants spend the day, to avoid the

* In this part of the translation, which follows the original more closely than the foregoing, we are indebted to the same fair hand, to which we were beholden on a former occasion.—Ed.

intense and scorching heat of their summer. The streets are narrow and irregular, and present every where the most uncleanly aspect.

A large bazar runs across from east to west, commencing from the *Serai Gaur katra,* and terminating at the fortress of *Balasir.* A stream which draws its waters from the river of *Bahréh,* crosses the town from south to north, and would very much facilitate the establishing of fountains, if the Asiatics only knew the use and advantage of them. The population of *Peshâwar* may be rated at 80,000 souls, consisting of Afghâns, Kashmerians, and Indians. The latter appear to have been its primitive inhabitants ; but although they are still very numerous, they live in dependence on the Mahomedans, and are oppressed by heavy taxation, (taxés d'avanies.) All the commerce of the country is in their hands. From *Cabul,* raw silk, worsted, cochenille, jalap, manna, asafœtida, saffron, resin, simples, and both fresh and dried fruits—all which are generally exported to India, from whence they receive in return, cambric, silks, indigo, sugar, and spices. To *Cashmir* the exports are gold sequins, gold and silver thread and lace, in transit from *Bokhára ;* and the return, shawls, tea, and Persian manuscripts. They exchange the salt of the *Kohât* range with the rock crystal and the iron of *Bijâwar:* this last district, as also those of *Sawât* and *Bunír,* offer a ready market for the sale of their tissues of cotton ;—the trades and arts of the town are limited to mere necessaries of life, and are principally carried on by the Cashmerians.

The Hindustâní is generally spoken, also the *Pashtu* ; the use of the Persian language becomes nearly extinct on entering this province. *Peshâwar* musters about 40,000 horse, a thousand foot soldiers, and twelve pieces of cannon. The troops are very irregular, and are badly paid.

The climate of the province is not very healthy. Fevers are very prevalent from the summer solstice to the end of autumn, at which period they generally prove fatal. They are brought on by excess in the eating of fruits, or by the unwholesome exhalations and vapours, rising from the rivers of the *Duâb.* The irrigation necessary for the cultivation of the Turkish corn in May, may contribute to engender fever, the heat of the air being then very intense. The inhabitants, ignorant of the superior properties of quinine, make use of a very bitter plant which grows on the banks of their streams. In 1835 I was encamped in this country with the French brigade, 10,000 strong, when we lost by these fevers upwards of a thousand men. Great inconvenience is also here experienced from swarms of flies, which prevent any nourishment being taken during the day ; for if

any of them be swallowed with the food, they occasion a vomiting, attended with very severe pain in the loins and in the chest. Snakes and scorpions are also in great abundance, and are often venomous.

The spring sets in early: by the end of February the peach trees blossom luxuriantly; by the end of April the weather becomes unpleasant; and the heat is scorching during the months of June, July, and August. In June the *Simum* prevails; it is sometimes pestilential, resembling the desert blast *(Samial)* of Arabia. When it blows, one would fancy that one stood at the entrance of a hot oven. "Heaven pity then," the poor traveller, who is overtaken by this wind at midday in the open country! When first attacked the body becomes covered with blue spots, and putrefaction is almost instantaneous. This wind generally blows from W. N. W., in the direction of *Jelálábád,* where it is frequently fatal. The hot season ends in September. The rains are heavy in the winter, when the sky is frequently clouded for a week together. There are intervals of rain also in April, but rarely. In July and August, the rainy season in India, little falls in these parts, but storms are very frequent, and very severe, and are always preceded by whirlwinds of dust, obscuring the atmosphere for hours together; they are brought on by the S. W. winds, and are accompanied by claps of thunder in rapid succession. The lightning falls with fearful flashes.

The environs of *Peshâwar* exhibit little else but a vast space covered with ruins and tombs. I discovered and dug out several remains of Indian statues. These statues, some of which are in plaister, others in bronze, appear to be of very ancient date, for they are devoid of beauty and are ill executed. They principally represent *Gauraknáthí faqirs,* or perhaps *Jogis,* who for a long time held the country west of the Indus. The image represented (in Plate XXVI.) was dug out of the village of *Banamarí,* which lies west of *Peshâwar.* At a greater distance are the ruins of *Pirigèl,* where in the rains Indian and Bactrian medals are to be found. To the west of *Peshâwar* is a mount upon which an ancient castle appears, which may be the one that Hephæstion besieged, and which was re-established by Timour Shah, and was subsequently sacked by the Sikhs. The Sikhs again rebuilt it in 1834, when this province fell into the hands of Ranjit Singh, in consequence of a victory gained over the Afghans by the division under my command. The gardens which stretch from the south to the west of the town present the appearance of a forest of orchards, where they cultivate the plum, the fig tree, the peach, the pear, the mulberry peculiar to this country, the pomegranate, and the quince: but these fruits, although beautiful to the eye, are very far

from having equal flavour with those produced in the south of France. The grape is only cultivated at the village of *Shèkh Imâm Mehdí.*

Peshâwar is situated in the middle of a vast plain, which stretches towards the N. E., and which is twenty-five kos in length from the east to the west, and fifteen in breadth from the south to the north. The mountains of the *Kattiaks*, and the *Afrédís* bound it to the east, and those of *Kohât* on the south. To the west it is bounded by the mountains of the *Kheibars*, and to the north the river of *Nagumán* separates it from the districts of the *Duáb* and of the *Yusafzais.* This plain is crossed by the river *Bahreh*, which has its source on the southern side of the *Koh-safed*, crosses the Kheibars, enters this district at *A'lam-gújar*, and after a short passage empties itself into the *Nagumán*, seven kos east of *Peshâwar.* Without it the district would be nothing but a barren desert. From June to September the river is dried up by the many drains made to irrigate the cotton plantations and the barley fields. The principal water-courses strike off at the village of *Serband*, and are divided lower down into an infinity of lesser ones, which give astonishing fertility to the soil of this district, and promote the cultivation of rice, which is principally sown in the village of the *Mûshtárzais*, and is much prized by the inhabitants of *Afghánistán*, and the *Panjáb.* The river *Nagumán*, which I presume is no other than the Malamantus of the Greeks, formerly ran to the west of *Peshâwar*, and you may still trace its bed near the ruins of *Rashekí.* It appears that some sovereign of the country must have changed its course, in order to fertilize the land of the *Mumunds*, which extends to the south of the town. This tribe, as well as that of the *Kaleels* who inhabit the west, have often bloody contentions for the water. The districts of the *Dáádzais* and of *Kalessa* are watered by the canal of *Budèní*, led from the same river of *Nagumán;* its waters are so favorable to vegetation, that grass grows on its banks to the height of a full grown man. The territory of *Peshâwar* is, generally speaking, most fertile, rivalling the best in Europe if it were but well administered. The harvest is gathered in the summer, and again in autumn. That of the summer yields an abundance of barley and corn,—that of the autumn several kinds of maize, rice, oil seeds, and abundance of cotton, which provides the inhabitants with a species of manufacture suited to the climate. Wood is procured in great scarcity from the surrounding mountains, on which very little grows.

This country on every side presents to the view ruins of ancient towns, of the very origin of which the natives are ignorant. The most striking are those of *Khohusser*, more commonly known by the name of the *Takkal*, where are the vestiges of three massive

cupolas, of very ancient date. Not far from thence are the ruins of *Rachekhi.* Further off the remains of the town of *Jamrud* may be observed at the entrance of the defile of the *Kheibar* mountains. The route from *Peshâwar* to *Michiní* betrays signs of old habitations at *Pirbala* and *Pessank.* The road to *Kohát* presents also the remains of *Boulidana,* which may possibly be Embolima of ALEXANDER. Quite close to this, *Deliter* may be seen; and further off, at the entrance of the defile of the *Kohâts,* are the ruins of *Kargan, Akor, Zendán;* and in the districts of the *Múmunds* may be also seen those of *Aspínagar, Bassevanan,* and *Ormúl.*

The province is divided into six districts; namely, the *Kaleels* to the west, the *Múmunds* to the south, the *Dáúdzais,* the *Duáb* to the north, the *Kalissa* to the east, and that of *Hashtnagar* to the north-east. These several districts yield a revenue of eight lakhs of rupees, without including the cantons of *Kohát* and *Lachiteri,* which bring near two additional lakhs. The district of *Kohát* is inhabited by the *Bungeish,* and is celebrated for the beautiful springs of limpid water which meet at the foot of the surrounding mountains. A coal mine exists in this territory, but the inhabitants derive but small profit from it. A mine of sulphur is also to be found there, but it is not worked; and some petroleum wells or mineral tar, which the inhabitants use to light up their dwellings. Adjoining to this pergannah are the districts occupied by the *Theris,* and beyond this is the province of *Banúták.*

The district of the *Duáb* is so called, because it is enclosed between the two rivers of *Nagumán* and *Jindi.* It is very fruitful in rice and sugar-cane, and abounds in beautiful and fertile meadows. It is inhabited by the tribe of the *Gigiánees.* In the district of the *Abázais* are the ruins of *Gound,* but their origin is not known. Still further in the direction of *Tengi* is the isolated mountain of *Azarneh,* which might well be supposed to be the Aornus, the conquest of which was one of ALEXANDER's most brilliant exploits. The fortress of *Hissár* is only ten kos to the N. E. of *Peshâwar:* it is situated three kos from the river of *Nagumán,* in an island formed by two branches of the river *Jind,* which flows from the outskirts of *Sawát* and *Bajáwar.* This fortress is conspicuously raised on a small artificial hill. At its foot are extensive ruins of an ancient town, apparently founded by idolaters, and upon which is built the actual town of *Hashtnagar,* a name meaning the seven towns*. Our geographers

* Hashtnagar, meaning eight towns. The whole eight are named on WILFORD's map.—ED.

think that this town is the same as *Massaga*, the capital of the *Assaceni*, but I am more inclined to think that it is the *Nysa* of the Greeks. Its proximity to the Cophenes, and above all what PLUTARCH states as said by ALEXANDER to his Macedonians, when they objected to fording the river on account of its depth, corroborate my conjecture. The inhabitants of the *Duáb*, and those of the mountains of the *Mourmards*, appear to me to be the Assaceni, who were employed by ALEXANDER in building the vessels, in which they sailed down the Cophenes as far as Taxila. To the N. E. of *Hashtnagar* is the mountain of *Behhi* standing alone on a vast plain, and close to it are the ruins of an ancient castle which is attributed to *Rajya Varrah*, and which, according to the traditions of the inhabitants, was the dwelling of the ancient sovereigns of this country. There are also some basso-relievos, and the traces of an aqueduct by which the waters were carried to the river *Jind*. This aqueduct commences at the ruins of *Rajir*, which are situated nearly opposite *Hashtnagar*. Further off in the district of the *Babúzais*, on another mountain, are the massive ruins of another fortress, which can only be reached by means of a path cut through the rock. It goes by the name of *Peli*.

Three days' journey north of *Hashtnagar* are the districts of *Sawát* and *Bunir*, where are the ruins of *Gerira*, *Bonsekhan*, *Zakút*, and *Chímkor*. Near the latter are four massive cupolas of the same kind as those of *Manikyála*. The small river *Panjkorí* traverses the district, and joins the *Jindi*. It is much to be regretted that travellers do not visit with more minuteness this portion of the country, as they might, were they to do so, gain positive information as to the march of ALEXANDER on the banks of the Indus. It is in these districts that BIRBEL, the Vizier of AKBER, perished with a whole army. The inhabitants have, we are told, cut a road through the rugged rocks, leading to the north, by means of which they communicate with the Tartar tribes of *Kashgar* and others. All that tract of country lying to the east of *Hashtnagar* is inhabited by the tribe of the *Yusufzais*. The Indus forms the eastern boundary of this district, and *Landeh* on the river *Nagumán* its southern. To the north are the mountains of *Panjitar* and *Shemla*. According to some historians, the province of the *Yusufzais* is the same as the Taxila of ALEXANDER, where the king OMPHIS reigned, whose fidelity and devotion facilitated to ALEXANDER the conquest of the Indus. But, according to other historians, and more especially in the opinion of PLUTARCH, the real Taxila was that country enclosed between the Indus and the Hydaspes.

The province of the *Yusufzais* is divided into eleven tappas—viz :

		Principal Towns.
Two tappas...	Sedu-zais,	Hound.
	Otuman-zais,	Toppi.
Five tappas, Rezers ..	Keder-zais,	Khiva.
	Mamu-zais,	Nohdéh.
	Malek-zais,	Yar-hosein.
	Akukhels,	Ismaila.
	Mani-zais,	Toulandi.
Two tappas, Amazais.	Ismael-zais, Daud-zais,	Kapurdigarbí.
Two tappas, Kamalzais.	Kamal-zais,	Ottí.
	Kamal-zais,	Túrú.

All these districts are governed by independent chiefs, who live in the greatest dissension. There are no taxes established, and each inhabitant rents, cultivates, and reaps the produce of his grounds, paying only a small sum as tribute to the chief of the district. It is only since 1822 that the Mahárája of Lahore succeeded by the force of arms in levying five rupees on every house and a certain number of horses, with which they are obliged to furnish him annually. The tribe of the *Yusufzais* is one of the most powerful in *Afghánistán.* It has always been remarkable for the independence it has preserved, and for some time it resisted the attacks of the Mogul kings, and even Nadir Shah himself, who never thoroughly succeeded in subjugating it. The people of this tribe are vigorous, active, turbulent, and have given proofs of extraordinary courage in the wars which they have had to sustain against the Sikhs. When public danger is threatened, all the districts suspend their own quarrels, and gather together to make common resistance. Each one provides himself with weapons at his own expense, and volunteers as a soldier under the banner of his chief. This soil is extremely fertile in every kind of grain, yielding a plentiful harvest of maize, beans, peas, cotton, oil seeds, and excellent tobacco. The mountains towards the north afford excellent pasture for all kinds of cattle. The province contains no town, properly so called, but it is embellished by large and populous villages : the principal one amongst them is *Kapardigarhí,* standing in the midst of the ruins of a very ancient town, which might very possibly be the Caspatyrus of the Greeks, the capital of the Gandári, whom our geographers place to the east of the Assaceni on the western bank of the Indus. Quite close to this village I observed a rock on which there are inscriptions almost effaced by time, and out of which I could only decipher the following characters. (See Inscription 5, of Plate XXVII.) Further off, on the opposite side of the mountain of *Koh-ganga,* are

the ruins of an ancient town, which is attributed to a heathen race; and quite close to that is the village of *Bazar*, now inhabited by the *Kamalzais*. Not far from thence is another very extensive ruin, where several remains of statues have been found*. In the land of the *Yusufzais* also are the ruins of *Motina* near *Yar-hosein;* those of *Gagri* and *Shirkand* near *Ismaila; Kirkand* near *Mayar*, in the district of *Otti; Kaleder* near the stream of *Kálapáni; Mashari-Banda*, on the river *Landeh;* and *Pélussedán*, opposite *Messa*. Besides these ruins the country is covered with an immense quantity of small artificial hills, on which there are remains of ancient dwellings, and where, in the rains, Indian, Bactrian, and Indo-Scythian medals may be found. Near *Panjitar* are the ruins of *Nogiran*, where there are inscriptions in the same character as those noticed above.

In the district of *Shemla*, which is further to the north, we remark those of *Nágari*, where basso-relievos may be seen. On the banks of the Indus are the ruins of *Péhour, Toppí, Hound*, and *Mahmedpur*, of which I have already spoken. The river *Landeh* or *Nagumán* separates the *Yusufzais* from the province of *Katiúks*. This country is very mountainous, and contains mines of sulphur, salt, springs of naphtha, and many slate quarries. It is inhabited by the tribe of the *Kattuks* and the *Aferidis*, intrepid mountaineers, who often intercept the route from *Attok* to *Peshâwar*. Their chief towns are *Nizámpur* and *Sirrí* in the interior, and *Akhoreh* on the right bank of the *Nagumán*. This last town may be presumed to be the *Ora* of Arrian. If this be the case, the inhabitants of the mountains of the *Katiúks* are descendants of the *Assaceni*. The province of the *Kattuks* is divided from that of *Kohát* by the district of *Lachitrí*.

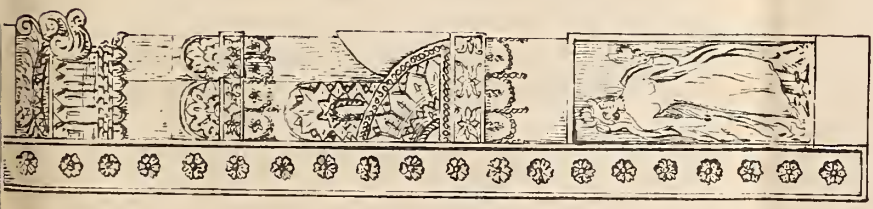
III.—*Facsimiles of Ancient Inscriptions, lithographed by* Jas. Prinsep, *Secy. &c.*

[Continued from page 349.]

Pl. XXVI. 1.—*Asírgarh inscription.*

This inscription, for the knowledge of which I am indebted to the antiquarian zeal of Dr. J. Swiney, has been in the possession of Dr. Mellish since the year 1805, when, according to a memorandum on the original drawing, it was copied from a wax impression of a seal found at Asirgarh by Captain Colebrooke, of the Engineers. By the three notes in pencil at the top, (which I have

* We have lithographad in Pl. XXVI. a bronze head dug up probably at this place by M. Court. It bears a Sanscrit inscription.—Ed.



ved from a drawing by Mons.r A. Court. RK

inserted), it would appear that the seal was surmounted by three series of figures, probably cast in bronze: viz. in the centre, *Nandi* the bull, with a state chatta over him, and supporters on either side, bearing, the one, a chatta and axe; the other a sceptre and axe.

The inscription, hitherto undecyphered, is at once seen to belong to the old form of *Deva-nágarí*, now grown familiar to us; and I am indebted to the Rev. Dr. Mill, for the subjoined transcript in the modern character, as well as for the translation of the text, and remarks on the same.

From the absence of a date it is not easy to assign a certain position to the five distinct successions which it embraces; though, from the locality of the inscription in a fort of *Khandésh* immediately south of *Málwá*, as well as from the termination of the names in *Varma*, they may be assigned with some probability to the *Ujjayani* dynasty; where, in the twelfth century, we find Naravarma, Yasuvarma, and three other *Varmas* recorded as having reigned. No one of these names, however, accords with any of the present list; neither does the modern Nágari of their inscriptions, of which Colonel Tod has published facsimiles, at all resemble the seal character, which is evidently of a much more ancient date. It is customary, also, in Hindu records of this nature, to commence with the reputed ancestor of the race; but we find no allusion to Vicramáditya or Bhoja in the present instance, and must either suppose our seal anterior to these illustrious personages—or unconnected with *Ujjayani*. It is certainly possible that a petty rája might have maintained independence for a few reigns in his hill fort, claiming descent from the unknown Hari-varma; but it is unlikely that he should have assumed the lofty title of *Mahárájadhirája*.

The twice recorded matrimonial connection with the Gupta family is also worthy of remark, as it may possibly have reference to the *Canouj* dynasty, whose coins have lately excited so much interest. The style of alphabet affords strong evidence of their contemporaniety.

Transcript of the Asírgarh inscription in modern Deva-nágarí.

1 चतुस्खभद्रातिक्रान्तकीर्त्तिः प्रतापातुरांगापनतान्यराजः पर्णाश्रमव्यवस्था
2 मतप्रवृत्तो वक्रशुक्रधनवप्रस्सामर्त्तो हरिश्रीमहाराजहरिवर्म्मा तस्य
3 पुत्रस्तत्पितृतुल्यातिजयः श्रीमतोतद्वारांकदेव्यामुत्पन्नः श्रीमहाराजादि
4 त्यवर्म्मा तस्य पुत्रस्तत्पितृतुल्यातिहर्षो गुप्ताग्रजारिकार्य्यामुत्पन्नः श्रीमहारा
5 जेश्वरवर्म्मा तस्य पुत्रस्तत्पितृतुल्यगरिमा गुप्ताग्रजारिकार्य्यामुत्पन्नो
6 महाराजाधिराज श्री.र.सिंहवर्म्मा तस्य पुत्रस्तत्पितृतुल्यातिहर्षयु
7 क्तो भारकामहर्य्यामुत्पन्नः परमहरीश्वरो म
8 हाराजाधिराजश्रीखर्व्ववर्म्मार्हेश्वरः ।

Translation.

"He whose glory was transcendent by reason of his four great goods*,—before whose splendour other kings bowed, sickened with envy,—who was ever occupied in the juridical decisions of learned Munies dwelling in leafy hermitages,—whose crooked ramparts were alike bright and impenetrable,—who was the spoiler of all such as were vexed with peace,—(such was) the great king Hari-varman. His son, whose excellent victories equalled those of his father, born of his noble† wife Anka-de'vi', was the great king A'ditya-varman. His son again, whose exceeding joys equalled those of his father, born of Arika'ri'‡, eldest daughter of the Gupta race, was the great king I'svara-varman. His son, whose magnificence equalled that of his father, born of Arika'ri', eldest daughter of the Guptas, was the great king of kings R. Sinha-varman. His son, possessed of like exceeding joys with his father, born of Bha'ra Ka'ma hari', was the chief of the excellent lion-rulers, the great king of kings Kharva-varman, our worthy Lord."

It is observable—that the title of *Rája-adhirája*, or king of kings—is here, as in the Allahabad inscription, restricted to the two last of the line of succession—viz. Sinha-varman, and Kharva-varman. I do not understand the simple letter R. prefixed to the former name, (viz. a र with a dot preceding and following)—unless it be an abbreviation for Rája: nor am I quite sure of the three letters following the last name, which I have made हैश्वरः W. H. M.

Inscription on a bronze image from Peshâwar.

The head depicted in Plate XXVI. is copied from a sketch in M. Court's memoir and collection of drawings, from which extracts are published in the present and in the preceding Journal, (see p. 482.)

The characters are decidedly Deva-nágarí, but whether from their indistinctness, or from errors in the copying, or from the language being different, their combination does not form any intelligent Sanscrit sentence.

* i. e. *Religious duty*, धर्म्म; *wealth*, अर्थ; *pleasure*, काम; *eternal salvation*, मोक्ष. Such are the four *Bhadras* or goods according to the Hindus. Amera Cosha, ii. 7, § 3, sl. 57. If, however, for स्वभद्र we read समुद्र with Prema-chan' Pandit, the translation will be, "He whose glory transcended the bounds the four encircling oceans."—W. H. M.

† The ordinary honorific epithet *Srímatí* is here, contrary to the usual rule introduced into the compound in the feminine gender. Regularly it should either be the crude form *Srímat*, or the locative case feminine *Srímatyám*.—W. H. M.

‡ The recurrence of the same name and description is singular. It is impossible that they should be the same person, such incest being unknown even to the heroic age of India.— W. H. M.

The head has its hair gathered in a knot after the fashion of the Hindu devotees, and it is bound together by a triple-headed snake of the cobra species—an ornament not uncommon to Jain figures, but rarely seen in the simple head of Buddha. The ears seem to be lengthened and split, in the style of the *Kánphatí* sect; but the drawing may also be viewed as of earrings in ears of the natural dimensions.

Pl. XXIX.—*Inscriptions on Kemaon Tridents.*

On the right hand side of Plate XXIX. is depicted the bronze trident at *Barahát* in *Garhwál*, reduced from the large native drawing presented to the Society by Mr. Commissioner TRAILL, last winter. The inscription on the shaft was published as No. 2 of Plate IX. with a translation and explanation by our Vice-President, Dr. MILL. The copper letters being in relief from the shaft were taken off in facsimile.

The same plan, Mr. TRAILL says, did not answer with the trident at *Gopèsvara*, although the *ancient* letters on its shaft are soldered on in the same manner.—The copy taken by the eye of a native draughtsman is unfortunately too incorrect to be legible: but the form of many of the letters shews clearly that this inscription is of the same age as that of *Barahát*.

On the upper part of the trident are three or four short inscriptions in the modern Devá-nagarí. These, Mr. TRAILL says, are cut into the metal. Three of them are illegible, or rather appear to be in some other language. One only is in Sanscrit; but in this also several errors have been committed by the transcriber. With the assistance of the Society's pandit I am able to present it in a complete form:—it contains a name—the grand desideratum in such cases; though too often, as in the present instance, it turns out to be a name unknown to fame! The verse is in the accustomed *Sárdúla Vikrídita* measure, so often mentioned by Dr. MILL. It opens with the invocation *Aum Svasti.*

ॐ स्वस्ति ॥ कृत्वा दिग्विजयं महाक्षय महादेवाग्रसंस्थामिमां राज्ञः
श्रीमदणेक* मल्लनृपतिस्तम्भकृत्नीतवान् ॥
पश्चाच्च प्रतिरोप्य तच्च विजयस्तम्भं प्रतिष्ठा
मगादुत खातप्रतिरोपणं हि महतां युक्तं नतानां पुनः ॥

"The illustrious Prince ANIK MALL, having extended his conquests on all sides, brought together (quere, humbled or made low) upon this

* The proper grammatical reading would be श्रीमदनीक

holy spot sacred to Mahádeva, under the emblem of a pillar, the very sovereigns of the world whom his prowess had overcome ;—

" And thus having re-established this same pillar of victory, he acquired reputation. It is a pious act to raise up a worthy foe when he has been humbled."

' Parcere subjectis et debellare superbos' seems to be the sentiment here inculcated ; and it is probable that the allegory of overthrowing and restoring enemies, alludes to the taking down the pillar (which may have been done to cut the new inscription) and its restoration, by some rája who had penetrated thus far in a successful expedition.

The name of Mall occurs as a patronymic in more than one dynasty of Nipál. It is not impossible, therefore, that the name here written Anik Mall, may be the same as the Anya Mall of the *Neverit* race, who reigned in that valley about the year 1195 A. D. according to Kirkpatrick's Sketch. Anya, which is without meaning, should probably be written Ani'k.

IV.—*Sub-Himálayan Fossil Remains of the Dádupur Collection. By Lieuts.* W. E. Baker, *and* H. M. Durand, *Engineers.*

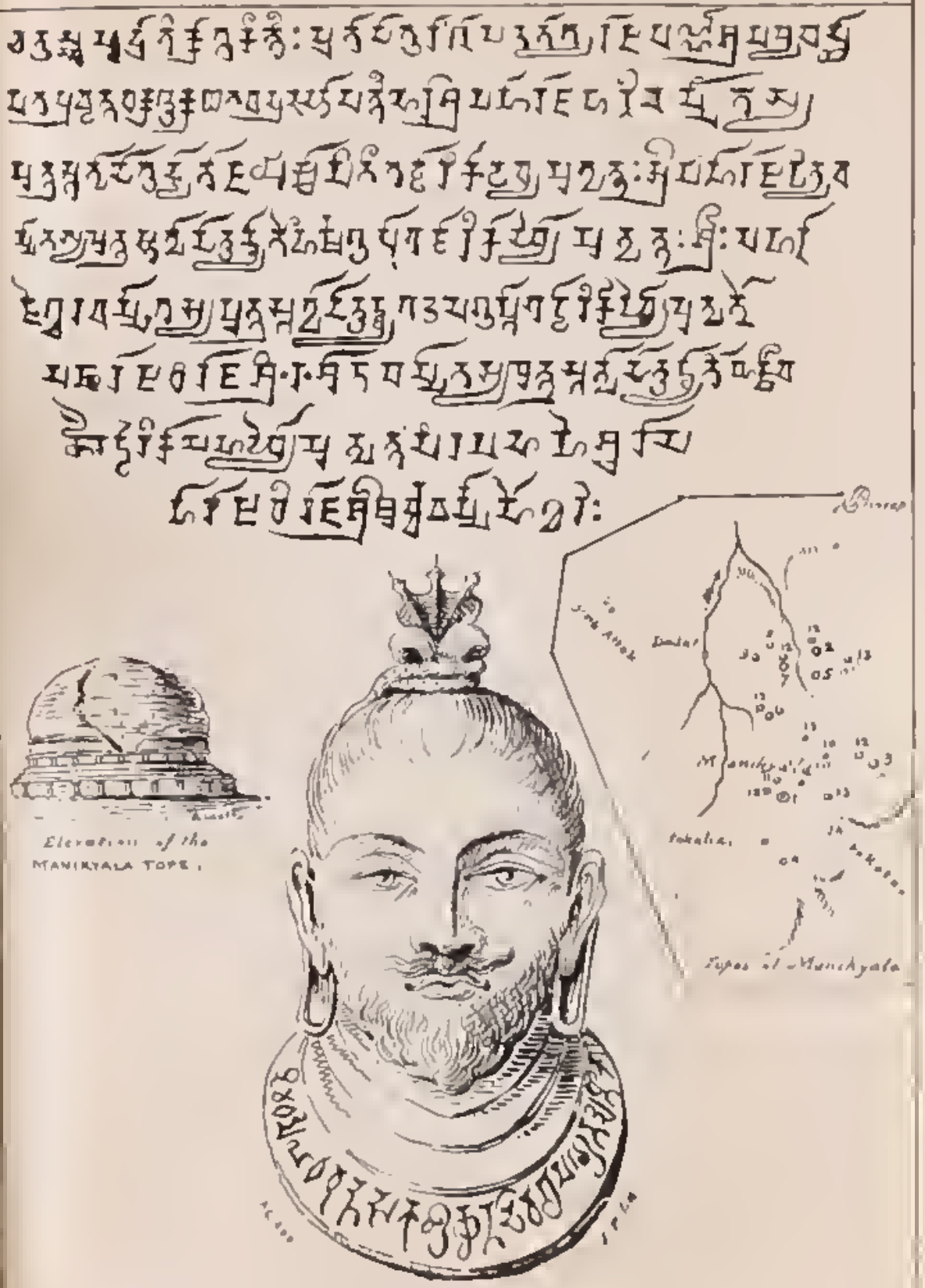
[We should be wanting both in candour and courtesy, were we not to point out to the reader, that the plates accompanying the present paper were furnished by our zealous contributors, and their esteemed commandant Col. Colvin. In despair of the difficulty and expence of executing so many plates in Calcutta, it occurred to us that the same pens and pencils which could produce such neat original drawings, could, if provided with the requisite materials, furnish engravings and lithographs ready executed for our Journal. We accordingly dispatched some yellow paper, and a copper plate, by dâk, to Dádupur ; and these are the first fruits. If not quite perfect, it should be remembered that the transfers had to travel 1,000 miles in the height of the rains ere they could be secured on the stone—and that the copper-plate, with its waxed and etched surface, had to be bitten by the acid after its arrival in Calcutta. The wonder is, that they should have turned out so well ! We anticipate much greater success hereafter.—Ed.]

RHINOCEROS.

The manner in which the organic remains of the Sub-Himálayas were at first deposited, and that in which they have been subsequently disinterred, have necessitated a system of search more favorable to the acquisition of specimens than to the accurate description of the localities in which they occurred. Hitherto the fossils were in general found widely scattered over the surface and throughout the ravines of the calcareous sandstone formation ; a dispersion which rendered gleaning from the hill surfaces preferable to excavation at any one place, affording the certainty of a larger number and greater variety of spe-

From the wax-impression of a **Seal** *found at Asir-gurh*
taken by Capt. Courtenay in 1805 presented by Dr. Mercer.

MAN WITH CHATTA AND AXE. NANDI WITH STATE CHATTA. MAN WITH SCEPTRE AND AXE

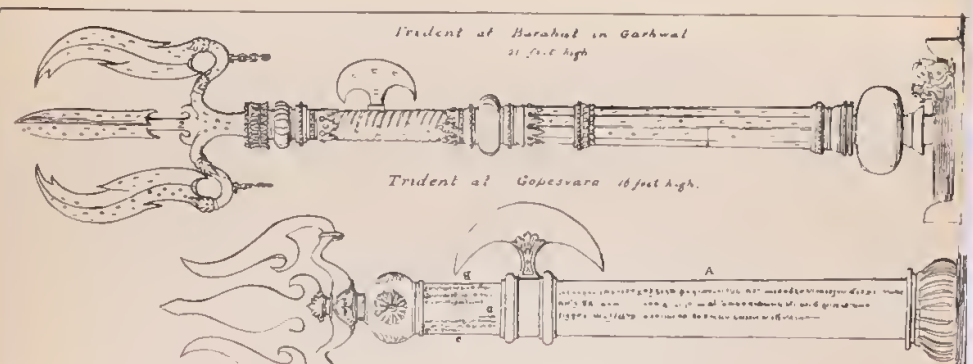


BRONZE HEAD *dug up at* PESHAWAR *by* M. A. COURT.

Trident at Barahat in Garhwal

21 feet high

Trident at Gopesvara 16 feet high.



Ancient Inscription on the shaft of the Gopesvara trident, at A.

Modern Inscription at B

Modern Inscriptions at C & D

cimens than could be anticipated to result from any other mode of collection. Notwithstanding these circumstances, however, it was soon observed that the different parts of the head, the various fragments of one limb, picked up at considerable distances from each other, could with a little trouble be extracted from the heaps and assorted; the sharp edges and accurate junction of the fractured surfaces preventing any doubt or mistake. Such restorations proved that whole extremities, perhaps entire skeletons, must occasionally have been entombed in the sand, and that the upheavement of the strata causing the greater number of fossils to be traversed by cracks, divided them into a number of fragments, which, on the degradation of the strata, were swept away by the drainage water to various distances from their original sites. It became an object, if possible, to discover these sites; with this purpose in view, many of the abrupt cliffs and fresh slips, with which this tertiary formation abounds, were examined; but with such little success as to render it evident that the gradual wear of ages could alone have sufficed for the exposure and dissemination of so vast a quantity of these relics on the slopes and in the ravines of the hills. The scattered fragments were seldom found to give any clue to the original place of deposit: in fact it has but once occurred to us that a nearly entire extremity has been discovered in the calcareous sandstone. And in order to illustrate the foregoing remarks, we have appended a sketch of these remains*; the drawing represents them as they lay after the removal of the sand which at first concealed all but the lower fragment of the femur: pieces of tusk, bones, and the half of a lower jaw, were found in the immediate neighbourhood, and indicated that the other parts of the skeleton of this *mastodon elephantoides* had originally been deposited at no great distance from the posterior extremity which forms the subject of the sketch. The whole may be considered a fair example both of the mode of deposition and of the subsequent dispersion which lodged separate, sharp-edged fragments on the hill sides and amongst the sandstone boulders of the water-courses. The rare occurrence of specimens under such favorable circumstances rendering excavation a very uncertain and ill requited labour, forced the native collectors to be satisfied with the crop which time had exposed.

* We regret exceedingly that the drawing on transfer paper of the fossil *in situ* was spoiled in passing it on to the stone. This was the case also with Plate XIX. a very beautiful drawing by Col. J. Colvin: but the latter officer having taken the precaution of forwarding its original, a tolerable attempt has been made to supply its place by M. Tassin. The initials W. E. B. to this plate have been inserted by mistake.—Ed.

Hence, too, the localities of fossils thus collected at places remote from each other did not admit of being accurately specified; a circumstance of less importance so long as the species, sometimes even the genera, exhibited characters distinct from the fossil and existing species hitherto described; but the species about to be noticed being an approach to an existing type, we consider ourselves fortunate in having witnessed the exhumation of many of the specimens referred to in this paper, and are only sorry that the limited time at our disposal was insufficient to enable us to take a plan and accurate sections of the ground.

The following general description may, however, give some idea of a locality which furnishes an exception to other places whence fossils have been obtained; in this instance they have not been met with in solitary fragments, but found massed together; and excavation has been resorted to with advantage. Though but an imperfect description, what follows may suffice to point out the site in question, and it has therefore been introduced.

The deposit is situated about a mile and a half to the N. W. of *Maginund*, a village on the left bank of the easternmost affluent to the *Caggar*, (or Gagur of some maps), immediately at the debouche of the channel from the hills. On leaving the village, crossing over to the right bank, and skirting for a short distance in a westerly direction the base of the hills, the bed of a tributary is reached, which, on being traced up, leads to the deposit. The formation here consists alternately of strata of calcareous sandstone and of strata of a loamy texture, composed of a mixture of sand and clay; the proportions of these ingredients of course vary continually, but in general they are nearly equal; the clay colours the strata, giving a brownish red shade. The calcareous matter which enters into these loamy strata is usually in small quantity, and they are so little indurated that some of the blocks, although sheltered from the force of the rain itself, fall to pieces when exposed to the damp atmosphere of a rainy day. The fossils extracted from this matrix are more fragile than those imbedded in the calcareous sand, and much care is requisite in disengaging them.

A hasty or distant view of the sections which here, as elsewhere, abound, might lead to the conclusion that the loamy strata predominate; for being, as above described, but little indurated and easily acted upon by damp and rain, they tinge the calcareous sand strata beneath them by covering their exposed sectional surfaces with red or ochre-coloured particles. The consequent effect is very deceptive; but on closely examining many sections, we invariably found the sand

to predominate. The part of the hills here alluded to is barren of wood. The strata evidently suffer very rapid degradation, in consequence of the facility with which the clayey beds yield to the abrading force of the drainage water; by means of the loose stratum, the more enduring sandstone is as it were peeled off, and covers the hill slopes with its debris. The dip of the stratification has a general N. E. direction.

The circumscribed space, more immediately under consideration, consists of about one hundred feet of ravine along a stratum of loamy texture. Within this confined space specimens of all the genera, contained in the synopsis of our collection, have been found: that is to say, the same bed which yielded so many remains of the fossil unicorn rhinoceros, likewise produced the half of the upper and lower jaws of a young sivatherium; many bones of the extremities of adult animals of that genus, or of a ruminant of as large a skeleton as that of the sivatherium; the anterior half of the head of an animal which presents analogies both to the palæotherium and anoplotherium; and, in short, exemplars of all the genera excepting the hippopotamus. The remains of fish and tortoises must also be added to the list of classes not hitherto discovered in this deposit: exceptions, however, which are probably accidental, as the plates of saurian animals have been obtained from thence.

The osteological remains, although strangely amassed together, are frequently perfect; in many instances whole extremities have been disinterred; there are cases of the greater part of whole skeletons being dug out, but these are rare; whole craniums of large animals have not hitherto been met with; a circumstance which, considering the number of their bones, would be unaccountable, had we not grounds for taxing the carelessness of the excavators as in part answerable for the anomaly. Perfect craniums of the smaller animals are of frequent occurrence; in one block we counted *five* craniums of antelopes, close together; not all equally perfect, as one of them possessed even the core of the horns complete, but with the molars and greater part of the head present, so that all error is excluded. Animals of the same species are not always thus heaped together: on the contrary, the relics of very different species may be frequently observed in contact. One block of moderate dimensions presented the assemblage of remains of the sivatherium, rhinoceros, sus, crocodile, of a large feline and a small carnivorous animal, of antelope, and of an undistinguished ruminant. Another block gave the head of a species of gulo, accompanied by the plate of a saurian animal. To the rhinoceros femur and tibia, (Pl. A) we found attached the astragalus of

an elephant and metatarsal of a rhinoceros: it would however be useless to mention at greater length the juxta-position of specimens in this stratum; suffice it to add, that sometimes, perhaps in general, the skulls and bones of the same species are found together; at others, however, as above described, the remains of very different species occur together.

There is one remarkable fact deserving of mention; which is, that by far the greater proportion of the craniums from this deposit are those of young animals; the adult bear a small proportion to them.

From the above site the fossils selected to form the subject of this paper have been obtained, with the exception of the following.

The cranium, Pl. XV. which was found about three miles from the Maginnud deposit.

The separate teeth, fig. 5, 6, 7, 8, Pl. XIX. which were brought at different times and without any account of the places at which they were obtained.

The fine fragment from a lower jaw, fig. 6, 7, Pl. XVI. which is in the possession of Conductor Dawe, of the Canal Department, to whom it was brought from the vicinity of the *Haripur* pass.

Cranium. We shall commence with the fossil, which being the most perfect, affords the best means of instituting a comparison with the skulls of described species. It forms the subject of Pl. XV. in which three views are given, which were taken with a camera lucida—the instrument and the distance of the cranium were so adjusted, that the reflected image was exactly one-sixth the size of the original. We are indebted to Colonel Colvin for the delineations in this plate.

The fossil cranium is imperfect in the following parts. The extremity of the nasal and intermaxillary bones are broken off; the zygomatic arches are both fractured; the left occipital condyle is wanting; the following molars have either dropped out prior to the envelopment of the head by the matrix, or have been broken off subsequently to its fossilization, viz. the fifth of the right, the first and seventh of the left maxillary. In addition to these losses the cranium has undergone, when in the stratum, the common fate of sub-Himálayan relics, and is cracked in several directions: the crush, however, which produced these cracks has not materially altered the form of the head; the chief effect produced has been the forcing the left half palate at its anterior extremity a little above its proper level; this the longitudinal crack passing through the left orbit enabled it to accomplish; the displacement resulting may be best observed in the profile view of the skull, fig. 3. The transverse cracks are accompanied by a small hollow and a consequent neighbouring bulge, both so partial and

of such small relief, that in the profile their places can only be observed by paying attention to the jagged outline at the depression of the frontals. With the above exceptions the specimen is perfect.

A glance at Pl. XV. will be sufficient at once to determine the species with which this fossil rhinoceros must be compared. The depression of the frontals causing the deeply curved outline of the upper planes of the head; the slope of the occiput; the septum and its nasal arch—all separate this cranium from the existing and fossil bicorn species. The existing unicorn species is that, therefore, to which recourse must be had in order to establish a comparison.

In the unicorn rhinoceros of Java the height to which the crest of the occiput rises above the palatal plane, as also the thickness and prominence of the nasal arch supporting the horn, are less than in the Indian rhinoceros. A line drawn tangential to the crest of the occiput and the highest point of the nasal bones will, in the unicorn species of India, be more raised above the plane of the frontals than is the case in the Javanese rhinoceros. In the foregoing respects the fossil associates itself with the Indian, and differs from the Java species. The comparison may, therefore, in general be confined to the former.

With the view of bringing at once under the eye, the discordance which occurs between the relative values of analogous dimensions, the subjoined table is here inserted. The modulus chosen is the space occupied by the seven molars, because on this measurement the development of the bones of the head must, to a certain extent, be dependent. The measurements given in Cuvier's Os. Fos. have afforded the proportions of the existing species; and the table of dimensions which closes this paper has given the proportions of the fossil.

Measurement.	Cuvier's Ind. Rhin.	Fossil. Ind. Rhin.
Space occupied by the seven molars assumed equal to, ...	1·00	1·00
Height of occiput from lowest edge of occipital foramen to summit of crest of occiput, ...	1·02	0·80
Greatest breadth of occiput, ...	1·11	1·05
Least thickness of cranium across temporals, ...	0·45	0.38
Breadth across at post orbital apophysis of frontals, ...	0.83	0·78
Distance from anterior of orbit to auditory foramen,.....	1·02	1·00
Breadth across the occipital condyles, ...	0·47	0·60

Referring to the table of dimensions it will be observed, that the height of the occiput is in the fossil less by met. 0.021 than the corresponding measure of Cuvier's Indian rhinoceros; but the greatest breadth of the occiput is met. 0.036 in favor of the fossil: relatively to the space occupied by the seven molars, these two measurements attain a less development in the fossil than in the existing animal.

The difference in the occipital condyles amounting to met. 0.065 in excess of the Indian rhinoceros causes a marked discordance in the ratios of these dimensions; but, as the left condyle and the adjacent parts are wanting in the fossil, the measure was obtained by doubling what appeared to be the exact half dimension; this of course is not so satisfactory as if the condyles had been perfect; any inaccuracy consequent on this circumstance could not, however, amount to a quantity which would materially alter the deduced proportion. The occiput, figs. 8, 9, Pl. XVII. is fortunately very perfect; from its dimensions, which prove it to have belonged to a smaller animal than the cranium of Pl. XV. may also be concluded, that though inferior in size to Cuvier's specimen of the Indian rhinoceros, which in greatest breadth of occiput exceeds it by met. 0.039, yet the space occupied by the condyles is 0.010 in favor of the small fossil occiput. In both of the fossils the depressions near the summits of the occiputs on each side of the mesial projections are deeper than those of the existing species.

The zygomatic arches not being entire, and the matrix being uncleared from the portions which remain, no particular remarks can be passed on them.

The sutures cannot anywhere be traced; a circumstance which precludes the notice of particulars frequently of importance in the comparison of species.

The least thickness of the cranium is but met. 0.001 greater than that of the Indian rhinoceros; and therefore in proportion to the modulus, yields a less ratio than that species.

The breadth at the orbits is met. 0.024 greater than in the existing species; consequently the skull does not in this part present any material discordance of proportion.

The length between the auditory foramen and the anterior of the orbit is 0.043 met. greater in the fossil; this measurement affords a proportion only differing met. 0.002 from that obtained from the existing species.

The infra-orbitary foramen is situated similarly to that of the Indian rhinoceros.

The nasal arch is massive and much developed; the spring of this arch is perpendicularly over the anterior of the second molar; that is a little more retired than in the Java or Indian rhinoceros skulls, given in Cuvier's Pl. 4.

The breadth of the palate has not been given in the table of dimensions, because the first and seventh molars not being perfect on both sides, measurements corresponding to those of Cuvier's could

not be obtained. It is comparatively less than in the existing species, but the great breadth of the teeth compensates for this difference.

Having detailed the essential differences and the points of resemblance observable in the fossil Indian rhinoceros when compared with CUVIER's dimensions of the existing Indian rhinoceros; we must be permitted to add, that additional measurements from skulls of the latter species are requisite before anything certain can be pronounced as to the amount of difference or correspondence between the two species. We are induced to make this remark, in consequence of having been favored with the examination of two craniums which presented considerable variation of proportions when compared with CUVIER's and with each other.

It appears to us desirable, therefore, to ascertain the limits within which individual variations range before any thing positive can be asserted. The foregoing remarks will have shown a great general resemblance, accompanied by a departure of proportions in some corresponding parts: the latter may be sufficient for the establishment of a new species,—at least for the present, until more data are obtainable whence to determine the bounds by which the individuals of one species are limited in their variations; for the sake of distinction, therefore, and present convenience, at the same time keeping in view the type to which it is a near approach, we have termed the species under consideration the *R. Indicus fossilis.*

Teeth. The remark has been already passed, that the greater number of fossils obtained from the Maginnud deposit are the remains of young animals: with the rhinoceros this has been particularly the case. We accordingly find ourselves better able to illustrate the early stage of dentition than that more advanced.

Fig. 1, Pl. XIX. represents the right half of an upper jaw, the left half being in this instance omitted, as also in figs. 3 and 4, in order that the series may be brought under the eye in one plate. Fig. 1 contains the four milk molars of the left maxillary; the fourth being but just cut is unworn; but the palate being broken away from the base of the tooth, more of it is seen than would otherwise be the case; in the right half of the specimen, where the palate is whole, the fourth molar is more concealed. The first molar is also unworn, but the second and third have suffered detrition. The two rows of teeth have their internal base lines parallel to each other, and the lines which would circumscribe their exterior much curved, in consequence of the difference of breadth which exists amongst the teeth. The upper part of an unworn tooth, measured exteriorly, is much longer than the lower; for the anterior of each molar projects beyond the posterior

extremity of the one immediately in its front by the gradual enlargement of the external line of enamel from the base to the summit. As the molars wear down, this outer development is reduced, the internal sides of the teeth come more into use, and breadth is gained in compensation for the diminished length of surface in wear.

Fig. 2, Pl. XIX. is a fragment from a right maxillary, containing the 1st, 2nd, and 3rd milk teeth, more worn than the corresponding molars of fig. 1. The 1st teeth in these two specimens are dissimilar; but that of fig. 1 not having completely disengaged itself from the jaw-bone, a strict comparison cannot be made between the two. The detrition which the remaining teeth have undergone does not prevent the trace of their enamel from being found to agree with that of the analogous molars of fig. 1.

A still further advanced state of wear is figured in fig. 3, which is taken from a cranium to which the occiput and anterior of the nasal bones are wanting. The 5th molar is here on the point of appearance; the four first are much worn, particularly the first and second; but there is no difficulty in tracing the correspondence between the molars of this and of the preceding specimens.

The above three exemplars of the deciduous dentition we assign to the fossil Indian rhinoceros, from the circumstance of their having been found in company with bones the forms of which clearly pointed out the species which they must have resembled. The disposition of the molars also corresponds with that observable in the cranium Pl. XV. where the same parallelism, of internal base line and arched external bounding line, exists. To which may be added, that the frontals of the cranium to which the molars of fig. 3 belong, evince no sign of having borne a horn.

Between the worn state of the deciduous molars exemplified by fig. 3, and the worn state of the permanent molars figured in Pl. XV. we have no connecting links, excepting such as may be obtained from a few detached teeth which appear to have belonged to this species—these are,

Fig. 5, Pl. XIX. The sixth molar from a left maxillary. The spur, which occupies no inconsiderable part of the hollow between the anterior and posterior transverse hillocks, is here less curved than that of the Indian rhinoceros; and there is wanting altogether the small salient of enamel, which in the Indian rhinoceros occurs between the starting point of the above mentioned spur and the point of junction of the exterior and anterior main lines of enamel. It may also be mentioned, that the exterior and posterior lines of enamel being less thick than the corresponding parts of the sixth molar of the Indian

rhinoceros, there is a greater space between the two. Such modifications of form are however fortuitous, differences of equal amount being observable in the teeth of animals of the same existing species.

This fossil measures in length, in. 2.50 met. 0.0645
in breadth, ,, 2.62 ,, 0.0675

Fig. 6. The 5th molar, derived from a left maxillary. The outline of its enamel accords with that of the similar tooth of the Indian rhinoceros, the only difference being in the dimensions and in the enamellated edge of the short beading at the anterior side of the tooth.

It measures in length, in. 2.08 met. 0.053
in breadth, ,, 3.27 ,, 0.0835

Fig. 7, is the 7th molar, and from a right maxillary; the point of the small spur is broken, as also the anterior extremity of the external line of enamel; but the tooth is sufficiently perfect to show a close resemblance to the analogous molar of the Indian rhinoceros.

It measures in length, in. 2.88 met. 0.0735
in breadth, ,, 2.53 ,, 0.065

Fig. 8, is the 7th molar of a left maxillary; the difference observable between this and the foregoing specimen consists in the great development which the small anterior spur here attains; in the former it is scarcely observable; in fig. 8 it is very prominent. Variations to an equal amount may, however, be observed in the minor saliants, &c. of enamel in teeth appertaining to skulls of the same existing species. No weight can therefore be attached to such unimportant modifications.

This fossil measures in length, in. 2.95 met. 0.075
in breadth, ,, 2.55 ,, 0.065

Fig. 5, offers a good example of the difference of length at the upper and lower parts of the tooth; the greatest length, which is that taken near the top, is given above; the least external length taken at the base would have been in. 2.04, or nearly half an inch less than the top measurement.

The cranium Pl. XV. has its molar teeth so much worn down, that the configurations of the enamel cannot be traced; the table of dimensions gives the length and breadth of each tooth, and shows that although the lengths do not materially differ from those of the corresponding teeth of the existing species, the breadths exceed those of any hitherto described.

Without complete illustrations of the milk-teeth of existing species, it would be dangerous to attempt a comparison between them and the fossil Indian rhinoceros. We have therefore avoided the endeavour;

but we must be allowed to notice the upper jaw fig. 4, Pl. XIX. which offers peculiarities when compared with figs. 1, 2, and 3 (of the same plate) deserving of remark.

The right half of the specimen is figured in the plate, the left half having lost the 1st tooth. With respect to age, this jaw nearly corresponds with fig. 3, the fifth molar being in both on the point of appearance. The following departures from the tracing of enamel in figs. 1, 2, and 3, may, however, be observed. The second molar of fig. 4 has this peculiarity,—that instead of the anterior portion of the tooth being one continuous offset from the exterior line of enamel, it only assumes that appearance after considerable detrition, consisting at first of a short offset and an isolated pillar, as shown in the drawing. The two sides of the jaw have been very unequally worn, in consequence of which the opposite side to that delineated has the pillar and offset conjoined. The third molar also presents a marked difference, when placed in juxta-position with the corresponding teeth of the other three jaws; the two spurs which occupy the central hollow of the tooth are of a different shape from that which occurs in the other specimens. In other respects fig. 4 corresponds with them—its rows of molars are parallel to each other, and the dimensions offer but trifling variations. The modifications of form above alluded to, unless fortuitous, which is perhaps improbable, denote the existence of another species; a fact corroborated by the examination of the milk molars of the lower jaws in our possession. Upon the consideration of these we now enter, but are able to offer but few and unsatisfactory remarks.

Lower Jaws. With the exception of the fine fragment, fig. 6, Pl. XVI. submitted to our inspection by Conductor Dawe, and the fragment fig. 9, the specimens of lower jaws are all from the Maginnud deposit, and all the remains of young animals.

Fig. 1, Pl. XVI. represents a fossil which has lost the anterior of its symphysis, the second molar on the right, and the first molar on the left side of the jaw; as also both the rami, which are broken off. Four molars have appeared, the second and third of which are worn, but the first and fourth have their enamel intact; the sections of fracture expose germ teeth. The two lines of molars have a gentle convergence, which is effected, not by a curve in the rows of teeth, for these are set in a perfectly straight line, but by the gradual approach of the two rows, which make a small angle with the medial line of the jaw. The section shown by the break of the symphysis and the interval between the front molars, argues the existence of a prolonged symphysis. The fourth molar is characteristic, having an isolated point or low pillar in the centre of the chord of its posterior crescent.

Fig. 5 is a fragment containing two molars, apparently the third and fourth milk ones; the outer enamel of the latter is mutilated, but the interior is perfect, and presents the isolated pillar of the posterior crescent, noticed as remarkable in fig. 1.

Fig. 4 is the right half of the lower jaw of a young rhinoceros, but of one somewhat older than the animal to which fig. 1 belonged, for the fourth molar has in fig. 4 suffered detrition. Notwithstanding the difference of age being in the favor of this specimen, the space occupied by the four molars is less than that of the four in fig. 1. The fourth molar is here devoid of the low isolated pillar in the posterior crescent, and has the central enamel, or junction of the two crescents, larger than in fig. 1. There are no means of ascertaining whether or not the opposite rows of molars were parallel, but in position of symphysis and set of the teeth in a perfectly straight line, this specimen corresponds with the foregoing.

Fig. 3 is the exterior view of fig. 4.

Fig. 2 has its fourth molar just disclosed and rising into the line of molars: it is devoid of the isolated pillar; but in size corresponds with fig. 1, instead of fig. 3, to which latter it assimilates itself by the fourth and second molars.

It is difficult to ascertain the degree of importance to be attached to such points of difference: in no specimen from the jaw of an adult animal has any trace of the isolated pillar been hitherto found: occurring as this peculiarity does in a deciduous tooth, should nothing similar take place in the permanent tooth which replaces it, the only chance of determining the question will be the discovery of an entire head. We have noticed an upper jaw, fig. 4, Pl. XIX, which indicates the probability of the existence of two species. The examination of the above lower jaws rather confirms this supposition; but in the event of such slight modifications denoting specific distinctions, we are unable, in consequence of the paucity and incompleteness of specimens, to decide which are the milk-teeth of the fossil Indian rhinoceros. Nor are we fortunate with respect to the lower maxillary of the adult animal; figs. 6, 7, and figs. 8, 9, being all that we can bring forward. The sections of these two fragments differ in consequence of their being derived one from the posterior, the other from the anterior part of the jaw, which thickens as it approaches to the symphysis. These two specimens resemble the corresponding portions of the lower jaw of the Indian rhinoceros, but are too imperfect to afford any satisfactory measurements for grounds of comparison.

Anterior Extremity.

A scapula in our possession is not sufficiently perfect to give accu-

rate measurements, but it bears as great a general resemblance to that of the Indian rhinoceros as do the other parts of the skelcton.

The humerus, figs. 1, 2, Pl. XVII, having its radius and ulna attached, was discovered by ourselves very close to the place whence we excavated the femur and tibia forming the subject of Pl. XVIII. With the exception of the deltoid crest, this humerus is perfect, and has afforded the dimensions which enter into the first column of the table. For the purpose of comparison the following five columns are here added. The proportions of the Indian and Sumatra small species of rhinoceros are deduced from Cuvier's table ; those of the fossil specimens are of course from the table of dimensions. The length of the bone is assumed as the unit, and the measures of other parts referred to it in order to obtain their comparative values.

Measurements.	Cuvier's Ind. Rhin.	Cuvier's Sumatra Sl. Sp. Rhin.	Fig. 1, Pl. 17. fossil I. R.	Fig. 5, Pl. 17. fossil Ind. Rhin.	Fig. 6, Pl. 17. fossil Ind. Rhin.
Length of humerus from tuberosity to external condyle,	1·00	1·00	1·00	1·00	1·00
Ditto ditto ditto internal ditto,	1·03	0·95	0·91	0·94	..
Greatest anter. post. diameter at top,	0.44	0·30	..	0·44	0·43
Breadth across condyles,	0·36	0·31	0·35	0.37	..
Ditto of articulating pully,	0·25	0·19	0·22	0·22	0·25
Least diam. of the body of the humerus,	0·15	0·13	0·14	..	0·15
Length of radius,	0·79	0·75	0.76	..	..
Breadth at top,	0·26	0·20	0.23	..	..
Ditto at bottom,	0·25	0·18	0.23	..	..
Length from articulating head to bottom of internal condyle,	..	..	0.82	0·81	0·87

The Sumatra rhinoceros (small species) concurs with the fossil Indian rhinoceros in having the length taken to the external condyle longer than that taken to the internal. The Javanese and the larger Sumatra species also accord with the fossil in this respect, but not so nearly as the small Sumatra species, which has consequently been introduced into the above table.

The length of the fossil humerus, figs. 1, 2, Pl. XVII, exceeds that of any of the existing species : its thickness is, in proportion to the length of the bone, intermediate between the Sumatra and Indian species. The articulating pully also possesses a development intermediate in value to those of the two existing species. The breadth at the condyles is in the same proportion or nearly so as that of the Indian rhinoceros. The radius is in length, considered with reference to length of femur, a little less than in the Indian and somewhat in excess of the small Sumatra species ; the remaining two dimensions of this bone yield values intermediate to those of the two existing rhinoceroses. These remarks apply to the deductions for fig. 1 ; nor would it

be necessary much to alter them in speaking of fig. 5 ; but fig. 6 presents such a close approximation to the Indian rhinoceros, that it is much to be wished that the specimen had not been so broken as to prevent additional measurements from being derived from it. Excepting in the length from the articulating head to the bottom of the internal condyle, it does not much differ from fig. 5. The bone, however, being imperfect, must be omitted in drawing a comparison between the fossil and existing species.

Fig. 1, varies most from the Indian rhinoceros in the proportion of the length taken to the internal condyle ; an anomaly difficult of explanation. We must here repeat, that there exists a necessity for a greater number of tables of dimensions taken from the skeletons of the Indian rhinoceros : the anterior extremity of a rhinoceros, with the examination of which we have been favored, yielded proportions so nearly corresponding with those deduced from the fossil humerus, figs. 1, 2, as to prevent our drawing more positive conclusions than those expressed at the close of the remarks on the cranium, Pl. XV.

Posterior Extremity.

The femur and tibia, Pl. XVIII, were dug up in such close proximity to the humerus and radius, fig. 1, Pl. XVII, that little doubt could be entertained of their having belonged to the same animal. Being perfect,

Measurements.	Cuvier's Ind. Rhin.	Fossil Pl. 18.	Fossil 3d in table of dimensions.	Fossil 5th in table of dimensions.
Length of femur from articulating head to bottom of internal condyle,	1·00	1·00	1·00	1·00
Breadth from head to most salient part of great trochanter,	0·38	0·43	..	..
Breadth across condyles,	0·29	0·28	0·26	..
Antero. post. diam. of internal condyle,	0·34	0·34	..	..
Ditto ditto ditto of external ditto,	0·27	0·26	..	..
Distance between bottom of 3rd trochanter and top of 1st,	0·59	0·61	..	..
Ditto ditto ditto small trochanter and top of head of femur,	0·46	0·41	0·46	0·42
Diam. of articulating head of femur,	0·18	0·19	0·16	0·17
From lower side 3rd trochanter to bottom of external condyle,	..	0·38	0·38	..
Length of femur from articulating head to bottom of 3rd trochanter,	..	0·72	0·71	0·64
Length of tibia from anter. tubero. to anter. edge of inferior articulating surface,	0·67	0·70	..	..
Greatest transverse diam. at top,	0·25	0·25	..	..
Antero. post. diam. from antero. post. tubero. to post. ext. of internal condyle,	0·29	0·31	..	..
Transverse diam. at bottom,	0·21	0·20	..	..
Diam. antero. post. of internal side,	0·14	0·13	..	..
Length of fibula,	0·62	0·65	..	..
Breadth at bottom,	0·10	0·10	..	..

except at the lower part of the great trochanter, the specimen affords ample means of comparison with the femur of the existing species.

On reverting to the table of dimensions it will be observed, that this fossil exceeds, as did also the humerus, any of those in Cuvier's table of existing species. The preceding columns show in what respects the proportions of the bone vary from those deduced from Cuvier's Indian rhinoceros. The length of the femur is here the modulus.

From a comparison of the two first columns in the above table there results, that the fossil has a greater development at its upper and a somewhat less development at its lower extremity than is the case in the Indian rhinoceros. The third trochanter is set lower down, and the inferior extremity of the small trochanter higher up than in the existing species; the articulating head is larger in proportion in the fossil than in the Indian rhinoceros. None of these modifications however are excessive; on the contrary, they are less than those which exist amongst the fossils themselves, which are all three undoubtedly of the same species.

From the manner in which the lower and exterior part of the great trochanter is broken, there is every probability that a descending point protruded from the fractured surface towards the third trochanter, the ascending point of which is very perfect.

The third trochanter, however, differs from that of the existing species as figured in Cuvier's *Oss. Foss.* in not possessing the double point; for it has a single well defined ascending process, without any sign of the bicuspid termination. The lower edge of this trochanter, instead of ascending with a gradual swell towards the point, as in the existing species, has a counter curvature to that of the upper edge. The chief dissimilarity between Cuvier's plate and the fossil occurs in this part of the bone, the third trochanter assuming a different shape, and offering a variation more distinctive than any other presented in either extremity. This circumstance, together with some of the proportions of the cranium, has led us for the present to distinguish these remains by appending the word fossil to the name of that species of which they are the prototype: but we dwell on the necessity of more extended research, and the collection of a greater series of tables of dimensions of the Indian rhinoceros, before any thing absolutely conclusive can be pronounced with regard to the fossil and existing species.

We have had no hesitation in ascribing the two limbs dug up in such close neighbourhood to the same animal; an additional confirmation of the correctness of the assumption may be derived from the proportion which exists between these two extremities, when compared with that which occurs in the Indian rhinoceros.

Ind. Rhin. femur and tibia, met. 0.960 humerus and radius, met. 0.868
Fossil Ind. Rhin. do. do. ,, 1.056 ditto do. ,, 0.947

In the first, the humerus and radius are to the femur and tibia in the ratio of 1 : 1·10; in the fossil the ratio is 1 : 1·11.

The analogy which exists between these fossil extremities and those of the Indian rhinoceros being no less striking than that which was observed between the cranium Pl. XV. and the skull of the existing species, we have considered such correspondence sufficient to prove, that the fossil anterior and posterior limbs appertained to an animal of the same species, and of about similar size to the one of which the cranium in question is a relic.

Even in the event of a much closer approximation of symmetrical proportions than that given in this paper being obtained, we are aware that identity of species could not be presumed. It could not be assumed that the skin, the external appearance of the animal, was precisely similar to that of the existing species. The fossil Indian rhinoceros must, however, have presented a figure bearing a strong general resemblance to the uncouth symmetry of its present representative.

Remarks on part of the specimens delineated in Plate XVII.

When describing the specimens of upper and lower jaws, the possibility of the existence of another species was noted. The fossil femur, of which figs. 3, 4 are representations, would be corroborative of the fact, were it not for a peculiarity which renders it somewhat doubtful whether or not it may be attributed to a species of rhinoceros. On comparing it with Pl. XVIII, the dissimilarity of the two bones will be at once apparent. The third trochanter is in fig. 3, placed about the centre of the femur, in which respect it resembles the unicorn of Java, thus described by Cuvier: "Le femur à son troisieme trochanter placé au milieu de son côte externe, large, recourbé en avant, ne remontant pas de sa pointe vers le grand trochanter lequel ne donne non plus aucune pointe pour venir à sa rencontre. L'echancrure entre eux n'est donc pas close en dehors; mais du reste elle est aussi grande que dans l'unicorne. La tête inferieure est plus enlargée en arriere." The latter remark, however, does not at all apply to the fossil, which has its inferior extremity much compressed instead of developed; so much so, indeed, that but for the other parts of the bone it could not for a moment be a matter of doubt whether or not it came from a rhinoceros.

Figs. 10, 11. Axis of a rhinoceros: the spinous process appears shorter and deeper than the one figured by Cuvier, and the main foramen more regularly circular.

Figs. 12, 13. A calcaneum which appears not to differ from that of the existing species.

Fig. 14. Tarsus and metatarsus. In this specimen the medial metatarsal bone is not so long as that of the Indian rhinoceros, but longer than that of any other species given by Cuvier. The general form corresponds with that in Cuvier's plate.

Fig. 15. Metacarpal bones: the medial one is rather longer than the same bone in the Cape rhinoceros, and considerably longer than in any other species.

Figs. 16, 17, are the external metacarpal of the left side.

Fig. 18. An astragal, which differs much from those figured by Cuvier, being higher, narrower, and more compressed.

Fig. 19. Tarsal and metatarsal bones of a rhinoceros, with the lower portion of tibia attached.

Table of Dimensions.

Measurements of the head.	Cranium. Pl. XV.		Occiput. Pl. XVII.	
	Met.	In.	Met.	In.
Height of occiput from lowest edge of occipital foramen to top of crest,	0·259	10·20	0·223	8·78
Greatest breadth of occiput, behind auditory foramen,	0·341	13·44	0·266	10·50
Least thickness of cranium at temporal bones,	0·126	4·95	..	..
Breadth between post orbital apophysis of frontals,	0·254	10·00	..	..
Distance from anterior of orbit to auditory foramen,	0·325	12·80	..	..
Space occupied by the seven molares,	0·324	12·75	..	..
Breadth across occipital condyles,	0·195	7·70	0·140	5·51
Ditto of occipital foramen,	..	..	0·0575	2·25
Height of ditto ditto,	..	..	0·049	1·90
Distance between internal extremities of glenoid facets of temporal,	..	..	0·0735	2·88
Ditto from lower edge of occipital foramen to medial post. extremity of palate,	0·368	14·50	..	..
Ditto from post. of right occipital condyle to spring of nasal arch,	0·539	21·22	..	..
Ditto ditto ditto to anterior of orbit,	0·449	17·71	..	..
Depth from edge of maxillary at 5th molar to upper surface of frontals,	0·239	9·42	..	..
Greatest transverse width of nasals at horn site,	0·174	6·86	..	..
Ditto external breadth at 6th molar,	0·246	9·72	..	..
Thickness of cranium over the medial post. extremity of palate,	0·204	8·06	..	..
Height of highest poiut of nasal arch above anterior of palate,	0·233	9·38	..	..
Perpendicular from a line tangential to the summit of crest and vertex of nasal arch to the depression of frontals,	0·099	3·91	..	..

Measurements of Upper Molars.	Cranium. Pl. XV.		Cranium. Fig.3 Pl. XIX.		Fig. 1. Pl. XIX.		Fig. 2. Pl. XIX.		Fig. 4. Pl. XIX.	
	Met.	In.	Met.	In.	Met.	In.	Met.	In.	Met.	In.
Greatest length										
Molar, 1	..	..	.030	1.19	.0295	1.14	.030	1.20	..	..
2	.035	1.36	.034	1.335	.038	1.49	.0395	1.53	.039	1.49
3	.045	1.75	.0475	1.85	.053	2.07	.056	2.17	.045	1.74
4	.049	1.92	.058	2.26	.061	2.39	..	..	.056	2.20
5	.044	1.69	.061	2.37	..	..	..	..	..	..
6	.0495	1.95	..	..	..	..	..	..	..	..
7	.0755	2.96	..	..	..	..	..	..	..	..
Greatest breadth										
Molar, 1	..	..	.024	0.95	.024	0.95	.0285	1.09	..	..
2	.059	2.31	.0385	1.5	.036	1.40	.041	1.58	.037	1.45
3	.080	3.15	.049	1.9	.045	1.88	.053	2.05	.051	2.007
4	.083	3.36	.0575	2.25	..	..	..	..	.059	2.30
5	.081	3.19	..	..	..	..	..	..	..	..
6	.089	3.48	..	..	..	..	..	..	..	..
7	.083	3.25	..	..	..	..	..	..	..	..

Measurements of Lower Molars.		Fig. 1. Pl. XVI.		Fig. 2. Pl. XVI.		Fig. 3. Pl. XVI.	
		Met.	In.	Met.	In.	Met.	In.
Greatest length of Molar, ...	1	.016	0.61	..	..	.017	0.67
	2	.037	1.44	.0335	1.30	.033	1.29
	3	.053	2.09	.050	1.98	.0425	1.67
	4	.047	1.82	.056	2.18	.046	1.79
	5	..	..	..	..	..	..
	6	..	..	..	..	..	..
	7	..	..	..	..	..	..
Greatest breadth of Molar, ...	1	..	..	..	..	.0115	0.46
	2	.020	0.77	.021	0.81	.018	0.70
	3	.026	1.01	.027	1.05	.025	0.98
	4	.029	1.12	.029	1.10	.030	1.19
	5	..	..	..	..	..	..
	6	..	..	..	..	..	..
	7	..	..	..	..	..	..

Measurements of Anterior Extremity.	Fig. 1. Pl. XVII.		Fig. 5. Pl. XVII.		Fig. 6. Pl. XVII.		Fossil humerus not drawn.		Fossil humerus not dwn.	
	Mt.	In.	Mt.	In.	Mt.	In.	Mt.	In.	Mt.	In.
Length of humerus from tub. to external condyle,.....	.538	21.20	.488	19.22	.482	19.0	..	..	..	..
Do. do. do. internal do.....	.492	19.38	.461	18.15	..	..	..	..	..	..
Greatest anter. post. diam. at top,.....	..	..	.218	8.60	.208	8.20	.200	7.90	..	..
Breadth across condyles, ...	.193	7.60	.183	7.22	..	..	..	..	.176	6.94
Breadth of the articulating pully,...	.119	4.70	.111	4.40	.121	4.80	.104	4.10	.109	4.30
Least diam. of the body of the humerus, ...	.078	3.07	..	..	.073	2.90	.071	2.82	.069	2.75
Length of the radius,.....	.409	16.10	..	..	..	..	..	..	..	..
Breadth at top,.....	.124	4.90	..	..	..	..	..	..	..	..
Ditto at bottom, ...	.124	4.90	..	..	..	..	..	..	..	..
Length of humerus from art. head to internal condyle, ..	.441	17.40	.393	15.51	.420	16.55	.389	15.35	.398	1570

Measurements of Posterior Extremity.	Femur&c. Pl.XVIII		Fossil femur not drawn.		Fossil femur not drawn.		Figs. 3 and 4 Pl.XVII.		Fossil femur not drawn.		Fossil femur not drawn.	
	Mt.	In.	Mt.	In.	Mt.	In.	Mt.	In.	Mt.	In.	Mt.	In.
Length of femur from ant. head to bottom of 3rd trochanter,	.449	17.70	..	..	.383	15.10	..	..	.328	12.94	.369	14.56
Length of femur from ant. head to bottom of internal condyle,	.621	24.45	..	..	.539	21.25	..	..	.510	20.10	..	..
Breadth from head to most salient part of great trochanter,	.269	10.60	..	..	..	..	..	..	..	..	..	..
Breadth across condyles, ...	.173	6.82	..	..	.143	5.63	.146	5.75	..	..	..	..
Antero. post. diam. of internal condyle, ..	.214	8.45	.221	8.70	..	..	.166	6.55	..	..	..	..
Ditto do. do. external condyle, ...	.161	6.35	.162	6.40	..	..	.139	5.48	..	..	..	..
Distance between bottom of 3rd trochanter and top of first, ...	.383	15.10	..	..	..	..	..	..	..	..	..	..
Distance between bottom of small trochanter and top of head of femur, ...	.259	10.20	..	..	.249	9.80	..	..	.215	8.50	.231	9.10
Diam. of articul. head of femur, ...	.118	4.65	..	..	.086	3.40	..	..	.089	3.50	.083	3.30
From lower side 3rd trochanter to bottom of external condyle, ...	.242	9.53	.177	7.00	.208	8.20	.266	10.50	..	..	..	..
Length of tibia from anter. tubero. to anter. edge of infer. articu. surface, ..	.435	17.15	..	..	..	..	..	..	..	..	..	..
Greatest transverse diam. at top, ...	.156	6.15	..	..	..	..	..	..	..	..	..	..
Antero. post. diam. from anter. tub. to post. ext. of internal condyle, ...	.195	7.70	..	..	..	..	..	..	..	..	..	..
Transverse diam. at bottom, ...	.128	5.05	..	..	..	..	..	..	..	..	..	..
Diam. of antero. post. internal side, ...	.086	3.40	..	..	..	..	..	..	..	..	..	..
Length of fibula, ...	.405	15.95	..	..	..	.	..	..	..	..	..	..
Breadth at bottom, ..	.064	2.54	..	..	..	..	..	..	..	..	..	..

Index to the Plates referred to in this paper ; shewing also their orders of succession.

Pl. XV. Three views of fossil cranium, (on lithographed paper.)

Pl. XIX. Views of connected and detached molars upper jaw, (copper plate.)

Pl. XVI. Ditto fragments from lower jaws, (lithographed paper.)

Pl. XVIII. Three views of femur and tibia.

Pl. XVII. A folding plate on lithographed paper, sundry bones of the extremities.

[The letters appended to the plates for convenience of reference in the MS. ; namely, A, B, C, D, E, F, have been changed in printing into Nos. XVIII, XVII, XV, XIX, and XVI. Plate F was, as before stated, spoiled in transferring it to the stone. By mistake the dimensions in Pl. XV, have been marked *one-fourth* in lieu of *one-sixth ;* a material error, which it is as well to notice thus prominently.—Ed.]

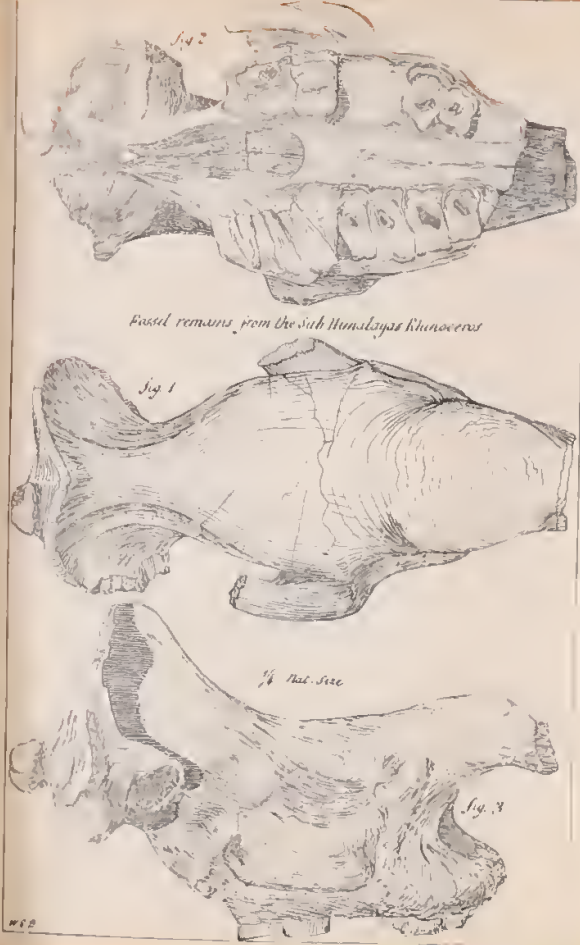
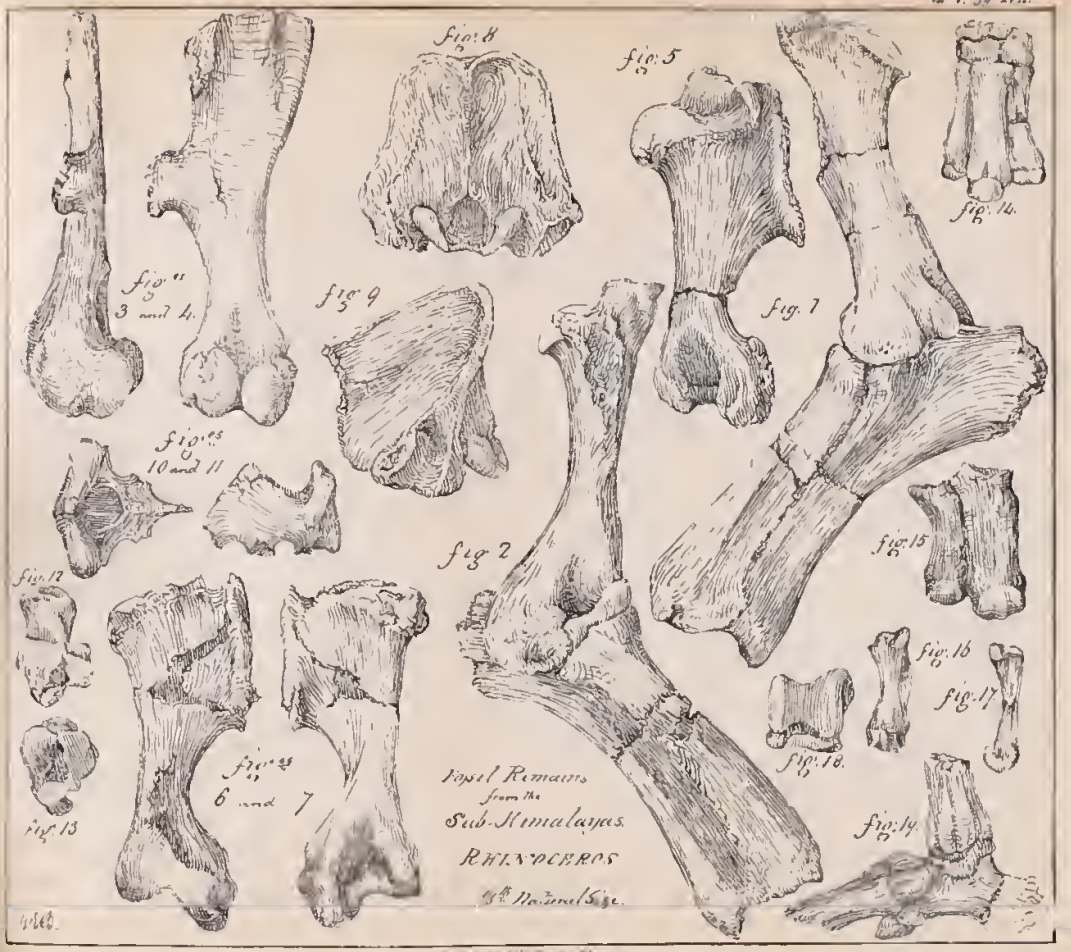
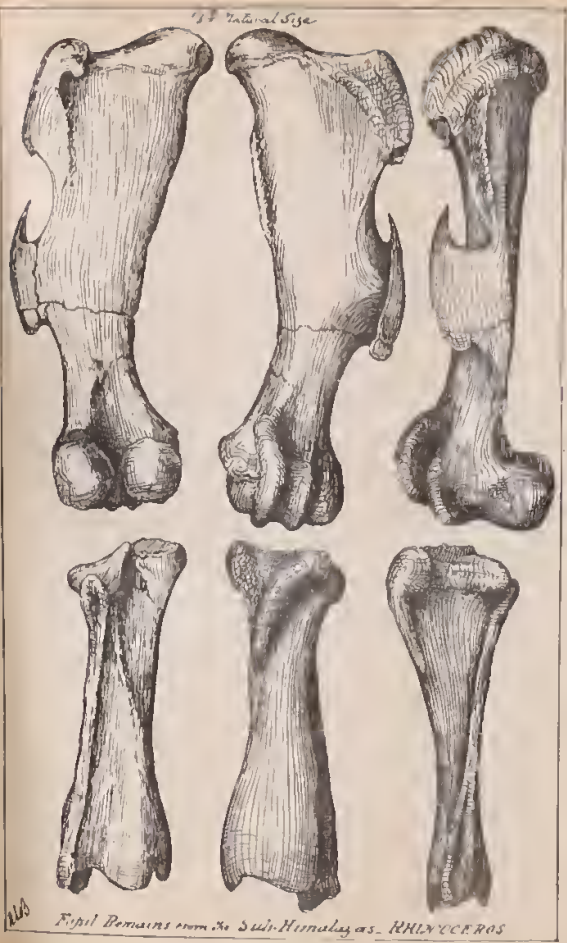


Fig. 2
Fossil remains from the Sub Himalayan Rhinoceros
Fig. 1
1/6 Nat. Size
Fig. 3
W.E.B.

Fossil Remains from the Sub-Himalayas. DINOVISORS. Sp. indeterm.



J. B. Tassin Lith. Press, Calcutta



Fossil Remains from the Sub-Himalayas. RHINOCEROS

Fossil Rhinoceros of the Sub-Himalaya.

Published by the Geol. Soc.

V.—*Note on the States of Pérak, Srímenánti, and other States in the Malay Peninsula. By* T. J. Newbold, *Lieut., A. D. C. to Brigadier General* Wilson, *C. B.*

Pe'rak.

Pérak is separated on its northern frontier, from *Quédah* by the *Krian* river, which debouches into the Straits of Malacca, in about 5° 10′ North. On the south it is divided from the piratical state of *Salangore,* by a river of inconsiderable magnitude called the *Runkúp,* which lies a little to the north of the *Bernam* river, in about 3° 59′ north ; interiorly, by the chain of primitive mountains, that run down the centre of the Malay peninsula to *Point Romania* near *Singapore,* from the states of *Tringánu* and *Pahánq* on the opposite coast. According to Captain Glass, the territory under the sway of the *Pérak* chief extended about 50 leagues inland: its length along the coast is upwards of 120 miles.

The principal town is situated a considerable distance up the *Pérak* river, which is one of the largest and most rapid of the streams of the peninsula that flow into the Straits of Malacca : according to Anderson, it will admit vessels drawing 12 feet. The channel, however, is tortuous and intricate. The banks are generally covered with jungle, having but a few villages at considerable distances. The places of most note are *Kota Lúmut, Bander, Pantong Panjang,* and *Pássir Gáram,* about 30 miles up the river. The chief generally resides at *Pássir Suyóng* or *Pássir Pulye ;* places about three or four days' pull from the mouth. It has been stated to me by natives, that there are several stockades commanding the approach by water to these places.

Produce.—The principal products of this state are tin, rice, and ratans. The present produce of tin is about 8,500 *picals* annually: this goes for the most part to the *Pinang* market : latterly some of it has found its way to *Singapore.* Mr. Anderson states, that the Rája Mu'da and Tuanku Hassin, sons of the late chief, Taj-uddin, established posts a few years ago, about 30 miles from the river's mouth, where they levied a duty on all tin exported. These posts have since been abandoned. The chief himself derives most of his revenue from a toll on the tin produced : so much, it is said, as from four to six dollars per *bhar* of 3 *piculs.* The Dutch enjoyed, for upwards of a century and a half, during their sway at Malacca, the monopoly of the tin. They had a factory at *Tanjong Puttús* on the river, and a small fort on the harbour between the Dinding Islands and the main. The cultivation of rice has, of late years, been on the increase. I was assured, by some respectable *Pérak* traders, that more than sufficient for home consumption was now grown.

Population.—The population of *Pérak* is roughly calculated at 35,000 Malays, professing the Mahomedan religion, not including the aboriginal tribes; a few Chinese, Arab and *Chuliah* (Malabar ?) settlers.

History and Government.—*Pérak* was formerly tributary to the Malayan sovereigns of Malacca, and afterwards to those of the kingdom of Achin. Since the decline of the latter, however, it has become in some measure independent; although Siam has, at various periods, asserted her claims to sovereignty, and demanded tribute. In consequence of the spirited resistance of the late chief, Taj-uddin, to these arrogant and groundless assumptions, *Pérak* was overrun in 1818 by the troops of the Rája of *Qáedah*, who had invaded it by order of the king of Siam. In 1822 the Siamese were expelled, and the rightful chief restored, by the powerful assistance of the late warlike chief of *Salangore*, Rája Ibrahim.

The government is despotic. *Pérak* has been ruled during the last three centuries by a race of chiefs, under the title of *Sultan*, who were connected with the ruling dynasties in *Johóre* and *Achin*. Under the *Sultan* are five officers of state, forming a deliberative council, viz:—the *Bandahára*, *Tumungong*, Rája *Múda*, *Mantri*, and *O'rang Káya Besár*. Besides these there are six *Panghúlás* over the six *Bongsas (Vansas)* or classes, into which the people are divided.

The succession to the throne is generally hereditary. *Sultan* Mansu'r Sha'h II, who died in 1818, was succeeded by his son Taj-uddin, who died about four years ago. His nephew, the present chief, Rája Cho'lán, succeeded.

Political and Commercial relations with the British Government.—In 1818 a treaty of commercial alliance was concluded by the British Commissioner, Mr. Cracroft, on the part of the Company, with the then Rája of *Pérak*, *Sultan* Mansu'r Sháh, chiefly with the view of preventing the monopoly of the tin trade by the Dutch, who were, at that time, about to resume possession of Malacca. This treaty provided against the monopoly, and secured to British merchants the privilege of being allowed to trade on equally favorable terms with *Pérak* as any other nation.

By Major Burney's treaty with *Siam* in 1826, it was agreed that the Rája of *Pérak* should govern his country according to his own will; should he desire to send the gold and silver flowers to *Siam*, as heretofore, the English would not prevent him. That if *Chow Phyá*, of *Ligore*, desire to send down to *Pérak*, with friendly intentions, forty or fifty men, whether Siamese, Chinese or other Asiatic subjects of Siam, or if the Rája of *Pérak* desire to send any of his ministers or officers to seek *Chow Phyá* of *Ligore*, the English should not forbid

them. That no force should be sent by either nation to go and molest, attack or disturb *Pérak*. The English engaged not to allow the state of *Salangore* to attack or disturb *Pérak;* and the Siamese, in turn, engaged not to go and attack or disturb *Salangore*.

The Siamese also stipulated in this treaty, that the present ex-king of *Qúedah* should not be permitted to live at Prince of Wales' Island or *Prye*, or in *Pérak, Salangore*, or any Burmese country.

Sri'menánti.

Srímenánti, though formerly considered as subordinate to *Johóle*, asserts her independence, and has tacitly assumed a place among the four elective states, though her claims are not distinctly recognized. The *Panghúlús* of *Srímenánti*, not being descended from the nine to whom titles were given by the Sultan of *Johóre*, assumed by the sanction of the *Panghúlú* of *Johóle*, that of *Sétia Mahárája*. Since this, seven *Panghúlús* have ruled in *Srímenánti*, the six last of whom were *Naham, Jallam, Allam, Pompom, Tallún*, and *Tálib*.

Rája Radin, one of the sons of the fourth *Menangkábówe* prince, Singang Laut, assumed similar powers to those exercised by the *Eang depertúan múda* of *Rumbówe* in this state, which he still retains, though now opposed by another candidate from *Menangkábówe*.

There are twelve *Súkús* over the twelve tribes in *Srímenánti;* their names with their titles are as follows:

Amin, Baginda Mahárája, Olay, Senára Múda, Molay, Mahárája; Manti, Padúka besár; Lattih, Orang kaia bongsu; Arrih, Sempúrna Mahárája; Lésáh Senára kaia; Aggah, Sri Mahárája; Eytút, Orang kaia kechil; Bandin, Senára Angksa; Si Main, Mahárája Lélah; and *Rejab, Perdana*.

The names of the twelve tribes are, *Sri Lummah Pahang, Sri Lummah Menangkábówe, Battu Ampar, Tannah Dattar, Sa Melóngan, Tiga battu, Payakumba, Muncal, Anak Achi, Battu Balang, Tiga Nenik*, and *Bódoanda Jacoon*.

Srímenánti is the place of residence, burial, and contains the *Astána* of the princes deputed from *Menangkábówe*.

It is bounded on the north by *Jhompóle;* towards the south by *Ulú Múar* and *Rumbówe*, (from which it is separated by the mountains of *Lepat Cajang* and *Gúnong túJoh;)* to the east its boundary with *Johóle* is the hill of *Búkit Pecla;* and to the west the *Paro* stream and *Teráclu* divide it from *Súngie-ujong*. The extent of *Srímenánti* is supposed to be about equal to that of *Rumbówe:* its population is estimated at 8,000. The principal villages are those of *Srímenánti Pinang, Saribú Peela, Póndok Passer*, and *Teráchi;* the

two latter places now claim their independence. Like *Srímenánti* itself, they were formerly subordinate to *Johóle*, and have been governed for seven generations past by their own *Panghúlús*. The name of the present chief of *Teráchi* is *Súlong*, and under him are six tribes. The *Panghúlú* of *Póndok passér* is named Ambong: it was with this chief the ex-*Panghúlú* of *Naning* sought and found a shelter after his defeat and expulsion in 1832. Part of *Teráchi* was formerly subject to *Súngie-ujong;* but during the late internal commotions and struggles for power, by which the *Menangkábówe* dynasty has been rooted out, leaving the interior in a state of anarchy and confusion, the minor chiefs seized on the opportunity to assert their independence, and in this unsettled condition they remain up to the present time.

The manners and customs of the inhabitants of *Srímenántí*, its revenue, internal administration, and law of inheritance, are much the same as those of the natives of the three states already described.

Its produce is tin, sapan wood, wax, ratans, and rice, most of which find their way down to Malacca.

A fresh tin-mine has been lately opened at a place called *Plangaye*, the produce of which during the last three months has been 30 *bhars* of metal.

States of Calang Jellabú, Ulu Pahang, Jellye, and Segámet.

Of the nine interior states, or *Negri sambílan*, formerly tributary to the Malayan dynasties of *Malacca* and *Johóre*, four already noticed, with their dependencies, acknowledged the sway of *Menangkábówe*, or rather of its deputed prince. The remaining five, viz., *Ulu Pahang*, *Calang*, *Jellye*, *Jellabú*, and *Segámet*, with their dependencies, adhered to *Johóre:* this kingdom, however, was too weak to retain them all. *Calang* was wrested from her by a colony of *Búgís*, who established an independent government at *Salangore* towards the beginning of last century, which has rendered itself formidable to its neighbours by the hardy, warlike, and piratical habits of its chiefs, but is now fast declining.

Jellabú has been taken possession of by the descendants of the *Menangkábówe* princes, and is now ruled by an *Eang Depertúan*, named *Rája* Sabu'n, son of *Rája* Adil, the second chief from *Menangkábówe*. This chief is looked upon by the superstitious Malays as a living *Krámet*, from the circumstance of his having "white" or very light blue eyes, with jet black hair.

Jellabú was governed formerly by its *Panghúlú* and *Ampat Súkú*. These still retain considerable authority; the name of the present *Panghúlú* is Aedur Rahman; his title *Akhir Zumán;* the titles of the *Ampat Súkú* are *Dattu Menniang*, *Dattu Mantri*, and *Mahárája Senára*.

The tribes under them are those of *Bodoanda, Tannah Dattar, Muncal,* and *Battu Ballang.*

The forms of government, laws, &c. obtaining in *Jellabú* are much the same as those of the states already described. Its population, which is divided into seven múkims, is estimated at 3750, not including the aborigines.

The produce is gold, ivory, tin, (about 200 picals annually), aloe-wood, jaggery, ratans, &c.; these generally find their way to the *Pahang* market.

The boundary marks of *Jellabú* with *Pahang* are nine Meranti trees, *(Meranti Sambilán,)* growing on the right bank of the *Jellabú* river; with *Sungie Ujong,* a hill called *Bukit Tangoh* and *Dhalu Karu Bandar Barangan;* with *Jompóle,* the hill of *Bukit Dejála;* and with *Calang,* the hill of *Guinting Perhi.*

Ulu Pahang and *Jellye* are now tributary to the *Bandahára* of *Pahang,* a chief nominally feudal to the kings of *Johóre. Jellye* is immediately governed by a *Panghúlú* styled *Mahárája Purba.* It produces a considerable quantity of gold and tin, which go to *Pahang.* Both this state and *Jellabú,* on account of their remoteness from the British frontier, have had little political connexion with the several governments at Malacca.

VI.—*Proceedings of the Asiatic Society.*

Wednesday Evening, the 7th September, 1836.

The Honorable Sir Edward Ryan, President, in the chair.

The Proceedings of last meeting were read.

Lieutenant Newbold was proposed as a member by the Secretary, seconded by Dr. Mill.

Lieutenant S. Tickell, proposed by Dr. Pearson, seconded by Mr. Prinsep.

Mr. Vincent Tregear was proposed as an honorary member by Capt. A. Cunningham, seconded by the Secretary:—referred to the Committee of Papers.

Read, letters from Dr. R. Harlan and Professor Lea of Philadelphia, acknowledging their election as honorary members, and presenting various works which will be found under the head of "Library,"

Read, a letter from Mr. J. K. Kane, Secretary American Philosophical Society, Philadelphia, acknowledging receipt of Researches, Vol. XVIII. and Index, and Journal, Vol. III.; and presenting publications in return.

Also, letters from M. P. H. Fuss, Secretary of the Imperial Academy of St. Petersburgh; and from Mr. Gabriel Döbrentei, Secretary of the

Hungarian Society at Pest, (in the Hungarian, Latin, and English languages,) noticing the receipt of M. Csöma's Tibetan Dictionary and Grammar.

The following letter from the Honorable G. Turnour was read.

Kandy, July 8, 1836.

Sir,

Various circumstances have concurred to prevent my presenting the Asiatic Society with the accompanying pamphlet sooner. Its completion has been delayed, partly from want of leisure, and also in some degree from my having entered more fully into an account of Páli Buddhistical literature, and published more of the *Mahâwanso* in this volume, than I had designed when I addressed you on the 10th July, last year.

In presenting a copy of this publication to the Governor General and the Governors of the several Presidencies, I have mentioned that I had adopted this preparatory course, with the view of eliciting the criticism of oriental Societies and scholars on this portion of the *Mahâwanso*, before the principal work issued from the press; and of thereby, at once, obtaining either a confirmation or refutation of the expectations I entertain as to its pointing out the road to a new and interesting field of research in Asia. It would be satisfactory, therefore, to me, if this pamphlet were referred to the Committee of Papers, for its judgment on it. At the risk of being considered affected, I repeat, that it is on the original work and on the general references thence deduced by me, that I court criticism. I cannot attach much importance to a translation, hastily made, of a work composed in a language which I have hitherto studied rather with the view of gathering information regarding the native institutions, than of familiarizing myself with its philological niceties.

The first volume of the *Mahâwanso* has been printed. I have only to recast the introduction, and prepare a glossary, to admit of its publication.

If the contributions to your Journal offered in the introduction (p. 110) would be acceptable; as a preliminary step, I would suggest your transferring to its pages, from those of the Ceylon Almanac of 1836, Mr. Armour's translation of Kitetigama's Essay on Buddhism, as well as his prefatory letter. The author of that Essay was a Buddhist priest, of distinguished reputation for learning; and Mr. Armour is unquestionably the best European Singhalese scholar in the Island. The comprehensive form in which the system of Buddhism as recognized in Ceylon is presented in that Essay, and the definitions there afforded of particular terms, will both save details of explanations in my analysis, and serve to render it more intelligible.

I have the honor to be, Sir, &c.

GEORGE TURNOUR.

To the Secretary Bengal Asiatic Society.

Mr. H. T. Prinsep in reference to the above stated, that the Governor General had empowered him also to solicit the opinion of the Society on the character of the Ceylonese Historical Annals, to guide his Lordship in Council as to the extent of patronage to be accorded to the work by the Government of India.

In compliance with the wishes of the Governor General and of the author himself, Mr. Turnour's Introductory Essay, Historical Epitome and translation, were referred to the Committee of Papers to examine and report their opinion of the authenticity and value of the *Páli* annals, which the author has undertaken to introduce to the knowledge of the learned world, as well as upon the fidelity of the translation, confronted, as it is, line by line with the Pali original in Roman character.

The Secretary read the following report from the Committee of Papers on the proposition of Cavelly Venkata Lachmi'a, referred by Government to the Society at the last meeting.

Proposition of CAVELLY VENKATA LACHMI'A, *Pandit, to the Madras Government.*

To His Excellency Lieutenant-General the Right Honorable Sir FREDERICK ADAM, K. C. B., Governor in Council, &c. &c. &c.

Fort St. George.

RIGHT HONORABLE SIR,

Par. 1.—I have the honor to submit respectfully, the accompanying copy of a letter addressed to your Excellency from the Royal Asiatic Society of Great Britain and Ireland, for the consideration of your Excellency in Council, of which Society I am a corresponding Member, whereby it appears that that Society is very desirous to receive every literary information in this part of the world, with a view to complete the late Colonel MACKENZIE's collection. I most submissively solicit, that your Excellency in Council will be pleased to sanction every support from the Government regarding those researches, particularly to authorize me to open a general correspondence with the gentlemen of literary endowments, under this Presidency, in the revenue, judicial and military branches of the service, to enable me to procure every information on the subject of the History, Antiquities, &c. of India.

2.—I beg leave to submit the enclosed copy of an abstract, comprising a brief idea of the nature of the work in which I am engaged. I leave it to your Excellency in Council to judge what may be estimated to be the expense and establishment required to bring it to a completion. It would, however, be presumptive in me, at the present stage of affairs, to suggest any specific amount. But the work consists of twenty-one different ancient alphabets and fourteen languages, ancient and modern, of various parts of the Peninsula; consequently, I would observe, that I will have occasion to employ in every zillah, on the smallest scale, two intelligent scholars, one versed in Sanscrit and the other must be proficient in oriental literature, whose office it will be to collect ancient inscriptions from religious structures and holy temples, which will prove the best guide to ascertain the accuracy of the chronology and history of the country. If the collectors undertake a part of this laborious task, I should imagine that it will prove less expensive: yet I am led to fear greatly, that they can hardly afford to give any attention to it, with the exception of some few of the most literary characters. For the materials thus collected, I would require an establishment of pandits, translators, &c. to arrange and bring down such information that may be collected and approved of.

3.—It never can be expected that the postage of the vast correspondence connected with this arduous task, which are necessarily required by the above Society, can be carried on at my own expense; I therefore most respectfully beg the favor of your Excellency in Council to pass all communications to and from me, as a corresponding member of the Royal Asiatic Society, free of postage, in the same manner as was passed in the late Colonel MACKENZIE's time, relative to which the enclosed is a copy of a letter from the Post Master General of this Presidency, dated 8th March, 1809, for the information of your Excellency in Council, and in the same manner as the Madras Literary Society is still enjoying this privilege without any interruption, as stated to the President of the Madras Hindu Literary Society, in your Chief Secretary's letter under date 22nd February, 1834, which is about *to be discontinued.* But I would faithfully promise that no abuse or advantage shall be taken of the confidence that may be reposed in me on the subject.

I have the honor to be, Right Honorable Sir,

Your Excellency's most obedient humble servant,

(Signed) CAVELLY VENKATA LACHMI'A,

Corresponding Member of the Royal Asiatic Society of Great Britain and Ireland.

(A true Copy),

Madras, 16*th June,* 1835. *Chief Secretary.*

Report of the Committee of Papers on Cavelly Venkata Lachmi'a's *proposed renewal of Col. Mackenzie's investigations.*

The reference from the Madras Government, for an opinion on the merits of Venkata Lachmi'a pandit's proposition, however complimentary to our Society, might perhaps have been addressed with better effect to the Madras Literary Society, which must be far better acquainted than we can pretend to be, both with the character and attainments of the individual, and with those desiderata in the History of the Peninsula, which he undertakes to elucidate.

We, however, enjoy one advantage in the possession of Mr. now Professor, Wilson's Descriptive Catalogue of Col. Mackenzie's Collection, which, aided by other published works on the history of the Southern Hindu States, may enable us to form a tolerable opinion on the question.

It might be supposed from the entire silence of Venkata on the subject of Mr. Wilson's labours in the statement he has handed up to the Madras Government of the "Progress of the Researches" *in which he is engaged*, that he was a total stranger to the descriptive catalogue; although the brief notice he gives of each state and dynasty, appears based upon the summary contained in the introduction to that work, both as to arrangement and detail; and certainly it adds not one iota to the information made public by Professor Wilson in 1828.

The object of Sir Alexander Johnston, in persuading the Pandit to found a native literary society at Madras was, doubtless, that through the gratuitous aid of those best acquainted with the languages and traditions of the country, and having connections or friends dispersed over the Peninsula, the learned world might be put in possession of translations and digests of the mass of MSS. collected by Col. Mackenzie; at the same time that other materials of a similar nature might be sought out and accumulated*. The Vice-President of the Royal Asiatic Society does not seem to have contemplated the organization of an extensive paid establishment of collectors, pandits and copyists; otherwise it is probable he would have addressed himself to the Government itself, either directly or through the natural channel of the Madras Auxiliary Society. For he would have anticipated that such an extensive scheme would need the control of a master head, accustomed to generalization, and capable of estimating the value and drift of inscription and legendary evidence. The qualifications of Cavelly Venkata for such an office, judging of them by his "abstract," or indeed of any native, could hardly be pronounced equal to such a task, however useful they may prove as auxiliaries in such a train of research. The pandit's *original* and *arithmetical* mode of weighing authorities, of which examples may be found in every item of his statement, is any thing but calculated to contradict this assumption. His remarks on the first, or ancient *Nandavarrum* dynasty of *Andhra*, may be cited as an instance:

"As this is a very obscure dynasty, confidence can only be placed in the inscriptions. From the materials already possessed in the collection of Col. Mackenzie, I suppose *one-eighth* of the history of this dynasty is complete, and *the remainder* should be completed by further research."

The Mackenzie Manuscripts (embracing, as Cavelly Venkata says in his letter to Government, using the words of the late Colonel himself†, no less than *twenty-one* different alphabets and *fourteen* different languages) have been for some time at Madras deposited in the College Library. We have no means of knowing whether during that period the pandit (himself a servant of the college) has published or undertaken the translation or analysis of any part of its contents. In the absence of any such testimony of his competence, contrasted with what will be presently urged, it seems impossible to recommend any large outlay of public money in the way he proposes.

Not that it is undesirable to complete the examination of the Mackenzie papers. On the contrary, all who have read Mr. Wilson's catalogue, will grant that to be an object of high, of national importance; especially when it is asserted that many of the volumes are going rapidly to decay‡, and may not be

* See Mad. Lit. Soc. Journal, No. 12, p. 173.
† See Preface to Wilson's Des. Cat.
‡ See Taylor's Hist. cr. Man.

available a few years hence. The British Indian Government has spent a lakh of rupees in purchasing these ancient records: to refuse the requisite aid for their examination and conversion to public use when they are known to contain a vast store of curious and interesting matter, would be false economy, only equalled by the case of the BUCHANAN MSS. in Calcutta, which cost even a larger sum, and which the Government has recorded its unwillingness to print even free of expense, or to take a single copy of it printed by others*."

But happily, in regard to the MACKENZIE collection, such neglect cannot now be feared. Independent of Mr. WILSON's able summary, we are aware† that Captain HARKNESS, Sec. of the Roy. As. Soc., has undertaken to translate and digest a portion of the manuscripts in London, and M. JACQUET of Paris has intimated that the mass of the Colonel's inscriptions, to which the Hon'ble Court of Directors have handsomely allowed him free access, are to be included in the "*Corpus Inscriptionum Indicarum*," upon which he is now busily engaged; while in Madras itself has lately appeared an able and zealous expositor in the Reverend Mr. W. TAYLOR, whose previous study of, and publication on, the history of the Peninsula, added to his acquaintance with the Tamul and Telinga languages, eminently fit him for the task, and point him out as the properest, if not the only, individual capable of fulfilling the grand object proposed by Sir A. JOHNSTON.

This gentleman has already gone deep into the subject. At a great expence and sacrifice of time, he has published a variety of "*Oriental Historical Manuscripts*" in the original character and in translation, with a connective commentary, shewing their bearing on the general history of the country.

The Editor of the Madras Journal, indeed, announces that Mr. TAYLOR has further undertaken a careful examination of the whole of the College MSS., and that he promises "a paper or series of papers on the subject‡." It would certainly be most desirable that such examination should not be cursory or incomplete, that it should not leave any thing to be done by others, who would have again to travel over the same ground of previous study to be capable of undertaking it. It would, in short, be most expedient to secure the services of Mr. WM. TAYLOR publicly, for the thorough examination of the MACKENZIE records; to allow him such assistance as he might require for the period, (with him necessarily so much shorter than could be allowed to any other,) which he might fix for the task; to unite CAVELLY VENKATA pandit with him, should he be desirous of assistance, (although from an expression at page 63 of his second volume, it may be imagined that he would not count much on the aid of the late Colonel's native establishment,) and to sanction the publication of those records, which he might select as the most valuable, either in elucidation of history or native science, philosophy, religion, customs, &c.

For the collection of new materials, the zeal of the numerous members of the English and native literary societies of Madras, (scattered through the various districts,) will need only the suggestions and direction of a leader so well qualified, to accumulate them, without any necessity for a paid establishment. The circulation of a scientific journal throughout the presidency will materially contribute and doubtless has contributed to excite curiosity to such objects among the "*gentlemen of literary endowments*," whose correspondence either with Mr. TAYLOR or with CAVELLY VENKATA, might advantageously be allowed the indulgence of exemption from postage.

Without first ascertaining Mr. TAYLOR's willingness to accept the office here chalked out, or consulting him on the extent of the aid he would require, it is impossible to estimate the probable outlay; but the Government records will furnish comparative data, in the sums paid for the "oriental translating establishment," entertained for a period under the late Secretary of the Asiatic Society.

* See Mr. Secretary BUSHBY's Correspondence with the Editor of the Gleanings in Science and Journal Asiatic Society.

† See Sir ALEXANDER JOHNSTON's address to the Royal Asiatic Society.

‡ Madras Literary Journal, No. 12, p. 173.

The volumes of Mackenzie papers in our library might advantageously be added to the other documents for the proposed scrutiny*, so that the whole might be published continuously; but these details will naturally come under consideration hereafter, should the Government agree in the view taken by the Asiatic Society, and resolve to entrust the undertaking to the individual pointed out, either directly or through the medium of the Society, (here or at Madras,) which might exercise its judgment as to the final publication, should Mr. Taylor consent to labour under its auspices.

(Signed) J. Prinsep, *Sec.*
For the Committee of Papers.

20th August, 1836.

Resolved, That the Society concur in the view taken by the Committee of Papers, particularly as to the expediency of engaging the eminent services of Mr. W. Taylor, for the examination of the Mackenzie MSS., and that the Secretary be empowered respectfully to communicate this opinion, in reply, to the Government.

Mr. Charles Brownlow submitted to the Society the following proposition, relative to a complete copy of the *Alif Leila*, or Arabic original of the 1001 nights entertainments, lately purchased by him from the estate of Major Macan, well known as the Editor of the *Shah Nameh*.

To James Prinsep, *Esq., Secretary Asiatic Society, &c. &c.*

Sir,

Having become the possessor of the original of the complete Arabian Nights Entertainments, formerly the property of Major Macan, apparently the first that has ever reached India; I am desirous of adding to oriental literature a work which has long been a desideratum with Eastern scholars, by its immediate publication. I trust that my views regarding the importance of this work are not unreasonable; at least I am not alone in my opinion, for no book extant has ever enjoyed such universal popularity as this, even in its translated form. Much of its narrative depicts, with miraculous fidelity, that most difficult class of incidents to describe with interest—the incidents of common life; and, beneath even its most grotesque and impossible circumstances, there is a moral beauty—a knowledge of humanity discoverable, which comes home to all, and *throughout*, a vivid power of description, which is unequalled in any other production, and addresses itself to the mind with an effect almost pictorial. It is the remark of an orientalist of high repute, speaking of this unique and extraordinary work, that "we here behold a genuine portrait of the spirit and character, the common life and domestic manners, of a once powerful nation, which excelled in arts as well as in arms, in three quarters of the globe; in these tales we see the Arabs, depicted by themselves, in the tents of the desert, and in the courts of the Caliphs. We mingle among their merchants, join them in their travelling caravans, visit them in their social circles, and even penetrate into their harems."

If the book appeal thus powerfully to the European reader, whose sympathies are weakened by distance and difference of habit, how much more emphatically must it address itself to the inhabitants of the East, in the overflowing and beautiful language in which it was originally written!

My chief object in this paper is to draw public attention to the document, and to give such evidence regarding its authenticity as I have been able to collect, under the very difficult and embarrassing condition of having no other complete copy to refer to. My attention has been directed, in the first instance, to the MS. alone, which contains the unbroken series of one thousand and one nights; next, to its quality, which is reported on by competent persons to be clear, and remarkably free from literal errors.

* See printed catalogue of the Library Asiatic Society.

My next step was to examine the MS. with the printed edition of the "Two Hundred Nights," published some years since in Calcutta, whence it appears that the latter is a set of excerpts merely, made, in many instances, without regard to the literary value of the selection, and in some, overlooking even the integrity of the tales. These fragments have been arbitrarily renumbered as the "*first* two hundred nights."

I have been fortunate enough to obtain a copy of that edition of the original now in the course of publication at Breslau, by Professor HABICHT, an orientalist of high attainments; he has devoted his life (and it had need be a long one to enable him to fulfil his task), to the publication of a complete edition of this work; he has procured copies of the MS., perfect and imperfect, from Tunis, from Cairo, and from the library of the Baron SILVESTRE DE SACY, and is proceeding with the publication, subject to the critical collation of these MSS. I find, on comparing the MS. in my hands, with the edition of HABICHT, as far as published, i. e. to upwards of three hundred and fifty nights, that no important discrepancies occur, though, in transcripts of this length, there will always be found considerable differences. This fact is curiously illustrated by the German Professor, who has carefully set forth the variations, omissions, redundancies, and inversions of order, found on comparison of his various MSS. It is likewise stated by M. TREBUTIEN, in his preface to a recent French translation of this work, (published in 1829,) that he collated twelve manuscripts, and among them those of the King's Library at Paris, and the Bodleian copy, which presented continual discrepancies, both as to style and the order of the tales, which every copyist had arranged according to his own taste. These differences, though they would be important in a historical paper, are of little consequence in a series of fictions. They have manifestly resulted from the carelessness or caprice of the transcriber, and do not affect the value of the work. All that can be done, under these circumstances, is to adopt the reading most consistent with the context.

Beyond the print to which HABICHT's edition extends, there exist *here* no means of continuous comparison. The evidence of genuineness is strengthened, however, by finding, that the portion of the original already known in the Calcutta edition, is found in the manuscript in my possession, except that the stories, in the latter, stand in their natural and proper connexion with the remainder of the text. The tales generally correspond in their order with those found in SCOTT's translation of 1801, taking into account those contained in the supplementary volume, (translated from WORTLEY MONTAGUE's MS.) and allowing for the omission of those which the translator has deemed it best, from motives which he assigns, to pass over.

A remark made by the Baron PURGSTALL (VON HAMMER) on the subject of GALLAND's translation, is another strong proof of the authenticity of the manuscript before me. He says, "the MS. used by GALLAND* was far from complete; and if he published no more stories, it was not because the remainder were less deserving of translation, but because he had no more in his possession. The imperfection of his manuscript compelled him also to invent, as he has done, a conclusion to that story of the Sultan of the Indies:—we shall find that SHEHERZADI was saved from death, neither by her many amiable qualities, nor by her inexhaustible tales, but by her having, during the 'thousand and one nights,' borne the Sultan three children!" TREBUTIEN's translation, the result of the collation of twelve of the best manuscripts in Europe, confirms this; it is a *literal* translation of the one now under consideration; the passage occurs at the thousand and first night, and is unquestionably one of the most pathetic and beautiful in the whole work! To the above may be added the strong *internal* evidence deducible from the uniform character of the style throughout. The manuscript is open for general examination, and I shall gratefully appreciate the opinion and advice of competent orientalists.

With reference to my intention of publishing, we have great advantages in the mechanical facilities, which we can so readily command, in printing oriental

* TREBUTIEN has since examined the MS. used by GALLAND, and finds that he possessed only two hundred and eighty-four nights.

works in this country ; and a work of this kind, which would take many years in Europe, might be readily produced here in less than twelve months. We have our disadvantages too : for it is far from probable, that any editor could be procured *here*, possessing the high qualifications and the indefatigable industry of the Professor before named, united with the leisure necessary for the undertaking ; one who would carry through the formidable labour of collation, of elaborate verbal criticism, and the compilation of a lexicon of words found in the original Arabic of this work, but in no other authority extant! We may despair of this ; but it is not too much to say, that an edition, accurate in all essential particulars, may be brought through ; and I will not conceal, that it would be a source of great gratification to me to be the means of giving to the classical literature of the East a book, which, while it has enjoyed throughout Asia and the civilized world a reputation equalled by none, has been, heretofore, in its complete and original form, but a *name!*

Calcutta, September 5, 1836. C. Brownlow.

Resolved unanimously, That Mr. Brownlow is entitled to the warmest thanks of the Society, and of all interested in oriental literature, for his disinterested exertions in regard to the *Alif Leila,* and for his laudable wish to make public the valuable and complete edition he has become possessed of. As it seems possible, by further comparison of the manuscript with the recent translation of M. Trebutien, and with the Arabic printed version of Professor Habicht, and the incomplete volumes published in Calcutta, to add in some degree to the guarantee of its authenticity, the Committee of Papers is requested to enter upon this examination, and report upon the extent of patronage to be accorded by the Society to Mr. Brownlow's laudable enterprize.

A letter from M. Eugene Ormoult, Director of the French Journal entitled "*Institut,*" addressed to the President, invited the Society to communicate copies of its proceedings and publications to this Journal, and to subscribe for a copy of the work. Referred to the Committee of Papers.

A letter was read from Dr. F. Mohl, one of the Secretaries of the Asiatic Society of Paris :—

Referring to a prior official communication (not yet received) offering to unite with the Bengal Society in the expence of completing the oriental publications abandoned by the late Government of India, and in furtherance thereof requesting a supply of the works already finished for sale on the Society's account, it states that the five copies of the Mahabbárat sent home under charge of our associate M. Richy, had been sold in one day, and it was calculated that there might be a demand for 100 copies of this work on the continent, and for half that number of other Sanscrit works. The money realized has been paid to the Society's agent in London. Dr. Mohl concludes :—

"Nous ferons ici tout ce que nous pourrons pour repandre ces ouvrages en France et en Allemagne, car nous sentons tous vivement le service que la Société de Calcutta rend à la litérature orientale ; et s' il m'est permis de parler de moi je ne desire rien plus ardemment que de pouvoir lui etre utile dans cette circonstance, ou elle a pris si energiquement et si honorablement les interets de la litérature orientale."

Library.

The following books were presented.

Transactions of the American Phil. Society—*by the Society, through Mr. Ryan.*

The American Almanack for 1836—*by ditto.*

HARLAN's Medical and Physical Researches—*by the Author.*

Transactions of the Geological Society of Pennsylvania, vol. i.—*by the Society.*

Transactions of the Hungarian Society of Pest—*by the Society.*

Transactions of the London Society of Arts, vol. i. pt. 2—*by the Society.*

Marsden's Numismata Orientalia, 2 pts. in 1 vol. 4to—*by the Author.*

Notes on the Indica of Ctesias—*by Professor Wilson, the Author.*

Epitome of the History of Ceylon and Translation of the Maháwanso—*by the Hon'ble G. Turnour, the author.*

Second Report on the State of Education in Bengal—*by Mr. W. Adam.*

Bell's Comparative View of the External Commerce of Bengal, during the years 1834, 35, and 36—*by the Author.*

The India Journal of Medical Science and Scientific Review—*by Dr. F. Corbyn, Editor.*

The Meteorological Register for July 1836—*by the Surveyor General.*

The following book from the Booksellers.

Lardner's Cabinet Cyclopedia—*Stebbing's Reformation*, vol. i.

Museum of Antiquities, &c.

Read, a letter from J. BELL, Esq, presenting various articles of food and clothing, in use among the savage tribes inhabiting the coasts of Dampier's Straits, brought to Calcutta by the Ship Bombay Castle.

The Secretary presented in the name of Lieut. COLIN MACKENZIE, various weapons taken from the Malay pirates;—among others a long bambu tube, through which light poisoned darts are blown by the mouth. The slightest wound inflicted by them is esteemed fatal. Lieut. MACKENZIE also presented the head of a pirate chief killed in the late expedition.

The Secretary called to the attention of the members present, a very curious piece of sculpture, sent down for the express inspection of his associates by Colonel STACY, a Member of the Society.

This sculpture (of 2-3rds size)—cut in the spotted red sandstone of Agra and Mathura. It seems to represent Silenus or Bacchus, his brows crowned with vine leaves, and supported by bacchanal attendants. The dresses of the figures, of which there are several on both sides very well proportioned and grouped, is decidedly not Hindu but rather Grecian, having a tunic of plaited folds gathered round the waist by a band. The figures and foliage support a large circular bason, which may have been for holding sacred water, or connected with a fountain. We must endeavour to make a drawing of this very interesting groupe, and publish it, with the zealous proprietor's account of its discovery.

Literary Communications.

A memoir by the Hon'ble G. TURNOUR on the authenticity of the early Buddhistical Chronology, developed in the *Páli* annals, as compared with the *Rája Tarangini* and other authorities, was submitted.

[This will be printed in an early number.]

A note on the *Muar* State, being the conclusion of his series of essays on the native divisions of the Malay Peninsula, and an outline of their

several political and commercial relations, was received from Lieut. T. J. Newbold, A. D. C. to Brig. Gen. Wilson, C. B.

Extract of a letter from Mr. V. Tregear was read, offering should the Society wish it, to forward to Calcutta the *Bhitarí láth,* containing the important inscription which the Vice-President Dr. Mill is now engaged in decyphering, as it is held in no reverence or consideration by the people of the neighbourhood.

Some conversation took place on Mr. Tregear's proposition, which his letter explained would not have been made, if it involved the removal or destruction of an object of local interest or veneration. The pillar was at present isolated, half buried in the ground, and in no way regarded by the people. By transferring it to the museum it would be preserved from further injury, and an inscription of great historical importance would be rendered permanently accessible to the antiquarian. It was the concurrent opinion of the members present, that if the removal could be effected at a moderate cost, Mr. Tregear's obliging offer should be accepted.

Adverting to the neglected condition of the pillar lying half buried in the ground in the fort at Allahabad, and the great interest which the inscriptions it contains had excited among orientalists in Europe, it was

Moved by Sir J. P. Grant, seconded by Dr. Corbyn, that a respectful representation should be made to the Government of India, on the expediency of taking measures to preserve the ancient monument at Allahabad from further decay, by setting it up, with a pedestal and railing, in such position within the fort or elsewhere as may appear most appropriate.

Physical Department.

A letter was read from the Secretary to the Medical and Physical Society of Bombay, forwarding a memoir by Dr. Lush, on the Fossils recently discovered in the Gulf of Cambay.

The fossils have been sent to Calcutta by the Chief Secretary Mr. Wathen, and may be daily expected, when the paper will be printed.

Mr. J. Trotter presented some specimens of the fossil bones recently discovered at the Cape of Good Hope.

Mr. Trotter's note informs the Society, that Mr. Pope, the modest discoverer of this new fossil deposit, had kindly promised to collect a more numerous series for the Society's museum, to be presented in the name of his lady, and that they may be soon expected. The specimens now presented consist of vertebræ and fragments of ribs of some large animal, which from their mutilated state cannot be identified; they are thoroughly fossilized and very hard. Mr. Pope says they are found chiefly in the bed of the Ganka river, whither they have been washed from the site of their inhumation in a "sandy and slate stone" soil: one specimen in his possession was found imbedded in this hard slaty matrix, from which it required a crowbar to extract it; it was as one solid rock. The vicinity of the district called the "Gouph" abounds with specimens; the country is stony and barren, and much intersected with dry ravines. It is situated between the *Zwarteberg* and the *Nieuwbergen*, the central part of the Cape Colony, Lat. 33° S. and 22°, 23° W. Long.

A memoir on the fossil remains of the smaller Carnivora of the Sub-Himálayas, by Lieutenants W. E. Baker and H. M. Durand, Engineers, with a lithograph, was submitted.

Description of some new species of the Strigine family; and indication of a new genus of the Picidæ, by Mr. B. H. Hodgson.

A specimen of the sea-horse *(Hippocampus)* called by the *Mag* inhabitants of Ramrí a young *Ngaga*, or "volcano serpent," was presented by Captain D. Williams, Senior Assistant Commissioner in Arracan.

Dr. McClelland exhibited to the Society the collections made by him, of Zoology and Geology, in the late expedition to the Tea province of Asám, and submitted two written notices, one of which he read in elucidation of the geology of the Kasia range.

Dr. McClelland stated, that the fossil shells were found in such numbers and variety at *Chirra Punji*, as to afford the most unquestionable evidence of the tertiary nature of the Kásia mountains: and further, that when the species shall be rigidly identified and compared with those of the London and Paris basins and the sub-Appenine beds, as well as with existing species in the Indian seas, it may be possible to find their place in the *Eocene* and *Pliocene* divisions of Lyell.

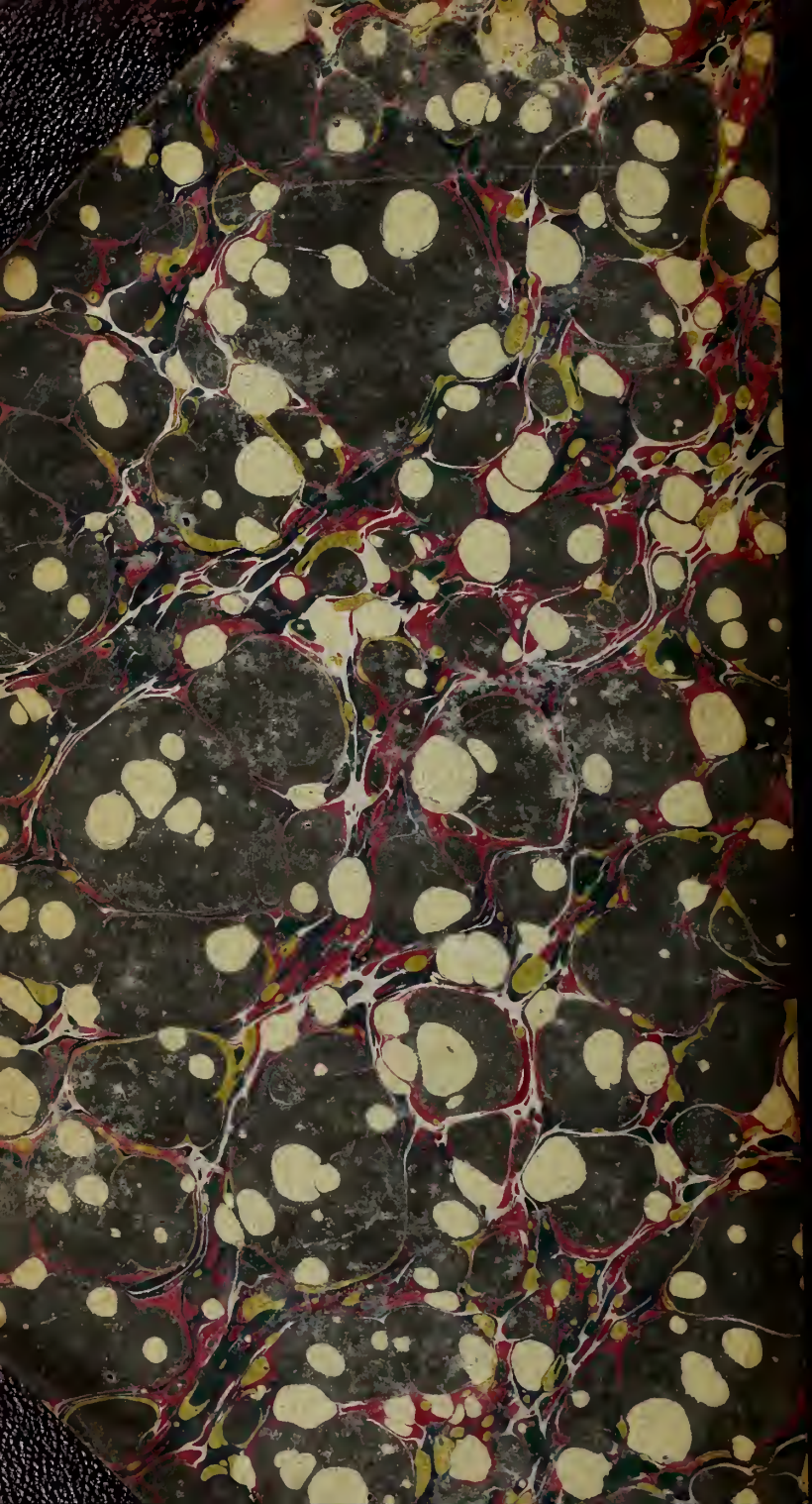
This he considered the first instance of any extensive deposit of fossil shells having been found in sub-Himalayan beds, calculated to throw sufficient light upon the period of upheavement.

Mr. Cracroft, and long before him Mr. Scott, had indeed made known the cerithia and turrilites of Chirra, and a variety of the nummulites of the Sylhet limestone, which is in fact made up of shells and nothing else; but to Dr. McClelland belongs the honor of having found 27 varieties of shells in the same limestone; also, of having found an extensive deposit of marine shells on the S. W. face of the mountains quite distinct from any limestone whatever, but imbedded in a superficial layer of partially consolidated sandy matter, which reposes on the surface of sandstone covered only by the soil, and of having exhibited 100 species nearly of these shells for the first time to the Society.

The great extent of the collection and the variety of objects of natural history particularly—embracing 120 fishes of the Brahmaputra; besides birds, quadrupeds, insects, shells, and a very numerous and regular series of rock specimens taken from the whole line of journey,—did great credit to the industry of Dr. McClelland. A vote of thanks was unanimously passed to him for the opportunity he had so kindly afforded the Society of inspecting his portion of the fruits of the late expedition to Asám. The descriptive catalogues of the whole are now in a state of forwardness, and will, it is presumed, be incorporated in a general report to Government by Dr. Wallich, who conducted the expedition, and it is hoped be eventually published for general information, either in a separate volume, or through the medium of the Society's Researches.

[We shall hasten to insert the two notes as soon as space permits.]

Meteorological Register, kept at the Assay Office, Calcutta, for the Month of August, 1836.

Day of the Month.	Observations at 10 A. M.							Calculated Humidity.			Observations at 4 P. M.							Calculated Humidity.			Register Thermometer Extremes.		Rain.	Wind.		Weather.	
	New Stand. Barometer red. to 32°.	Old Stand. Barometer at 32°.	Thermometer in air.	Depression of wet-bulb.	Do. by Leslie's Hygro.	Dew point.	Hair Hygrometer.	Centesimal tens. of vapour by wet-bulb.	Ditto by dew-point.	Do. by hair Hygrom.	New Standard Barometer.	Old Stand. Barometer at 32°.	Thermometer in air.	Depression of wet-bulb.	Do. by Leslie's Hygro.	Dew-point.	Hair Hygrometer.	Centesimal tension of vapour by wet-bulb.	Ditto by dew-point.	Do. by hair Hygrom.	Cold on roof	Heat in sun.		10 A. M.	4 P. M.	Morning.	Evening.
1	29,543	29,590	33,1	3,9	3,3	76,2		82	80		29,439	29,503	85,6	5,2	4,3	76,6		75	73		74,5	95,8	,10	SW.	S. E.	cum. strat.	hazy.
2	,624	,638	85,1	5,8	5,0	75,5		78	73		,532	,603	87,1	5,5	4,6	76,0		75	70		75,0	96,5	,05	SW.	se.	do	cum. str.
3	,633	,696	86,5	6,1	5,4	76,3		75	80		,514	,598	89,9	8,7	8,6	74,7		63	62		75,0	98,2		s.	se.	do. fine.	hazy.
4	,587	,630	86,7	8,6	7,8	74,5		60	68		,484	,548	85,3	4,6	4,3	76,5		80	76		76,2	103,2	,35	S.	se.	fair.	threatening.
5	,545	,599	86,3	5,2	5,0	77,7		75	75		,407	,480	90,9	8,3	7,6	76,5		65	64		76,0	116,0		se.	ese.	cum. strat.	cir. cum.
6	,449	,512	88,2	6,2	5,6	77,0		72	70		,327	,399	87,4	5,7	4,7	78,7		75	76		78,2	103,8	,05	se.	se.	do	showery.
7	,382	,435	86,7	5,4	5,4	76,5		75	72		,274	,325	87,0	4,9	4,0	77,5		77	74		77,0	105,0	,35	S. E.	e.	cum.	rain.
8	,351	,393	86,4	4,6	4,2	77,5		80	75		,241	,286	87,1	4,3	4,0	79,6		80	78		75,2	97,8	,35	S. E.	E.	cldy.	showery.
9	,363	,410	86,9	4,5	4,4	77,4		80	74		,310	,362	86,2	4,6	3,6	76,6		80	74		77,8	91,0	,30	ES. E.	ese.	hazy.	overcast.
10	,522	,563	85,9	4,1	3,5	75,0		82	72		,448	,496	86,9	4,2	3,0	76,5		80	73		76,2	91,0	,25	ES. E.	S. E.	showery.	rain.
11	,540	,582	85,7	4,5	4,3	76,7		80	76		,445	,499	88,7	6,1	4,6	77,0		72	69		76,2	97,5	,10	se.	se.	cum. fine.	do
12	,571	,614	86,8	5,1	4,7	76,6		80	73		,455	,514	90,9	8,4	6,8	79,0		65	69		76,2	85,9		se.	se.	do	cum.
13	,609	,643	85,1	4,6	4,8			78			,494	,542	85,5	4,2	4,0	77,3		80	77		77,0	95,4	,20	E.	E.	do	showery.
14	,566	,620	85,8	5,0	3,5	78,0		85	78		,461	,523	87,3	4,8	4,8	73,6		78	76		76,7	97,9	,65	se.	se.	do	do
15	,523	,532	86,6	6,1	5,2	75,8		75	71		,396	,464	87,5	5,8	5,1	76,5		72	70		76,8	112,5		se.	se.	do	do
16	,484	,544	87,5	4,8	4,6	77,0		80	72		,430	,452	87,9	5,4	4,0	77,3		75	72		78,2	100,5		se.	e.	do	do
17	,564	,622	87,3	5,2	5,3	75,0		75	68		,478	,542	87,5	4,9	4,4	78,3		77	74		78,2	99,1	1,50	se.	se.	hazy.	overcast.
18	,541	,596	86,3	4,6	3,8			82			,446	,512	88,7	6,6	5,2	75,6		70	66		74,7	101,0		ne.	ne.	cumuli.	showery.
19	,489	,547	85,3	3,9	3,7	77,2		82	77		,363	,432	88,5	4,9	4,0	77,6		80	71		77,2	110,0	,55	ne.	ne.	do	do
20	,440	,490	86,4	5,2	4,7	77,5	90	80	76	78	,298	,380	91,2	8,8	7,2	77,3	85	62	65	68	76,2	100,0		e.	o.	do	do
21	,329	,388	84,5	3,0	3,0	80,0	95	85	87	88	,227	,280	84,2	3,5	3,8		94	80		87	76,4	85,0	1,25	ne.	S.	rain.	rain.
22	,411	,453	83,5	3,5	2,5	77,8	95	87	84	88	,353	,415	86,5	4,7	4,0	78,0	92	80	77	82	76,2	93,5	,30	se.	se.	overcast.	showery.
23	,529	,586	85,9	4,0	3,7	77,5	93	82	77	84	,435	,496	85,6	4,2	4,0	77,5	94	80	77	87	75,0	99,3	,20	S. E.	se.	fine.	do
24	,544	,604	86,9	5,0	4,2	77,8	91	80	75	80	,394	,460	85,3	5,0	4,2	78,0	90	77	80	78	76,0	103,6		S. E.	se.	showery.	do
25	,339	,453	84,7	4,4	4,0	77,0	92	80	81	82	,285	,358	86,5	5,1	4,8	76,6	92	77	74	82	75,3	84,2	,35	S. E.	S.	cloudy.	do
26	,527	,568	81,2	2,9	3,2	76,2	94	85	85	87											73,0	85,0	4,00	se.	—	hd. rain.	do
27	,690	,743	84,1	3,5	3,4	76,7	94	85	79	87	,571	,639	88,7	7,1	6,0	75,5	87	67	66	72	74,5	95,5	,10	S. W.	S. W.	overcast.	fine.
28	,641	,678	85,8	4,0	4,0	79,9	91	82	78	80	,522	,535	89,7	9,7	8,5	73,5	82	57	60	63	78,2	104,0		S. W.	S. W.	fine.	do
29	,559	,614	86,3		5,0	76,5	89	77	74	76	,447	,503	89,4	4,5	4,7	78,2	90	80	71	78	77,8	111,2		S. W.	S. E.	cum. str.	showery.
30	,531	,596	85,9	4,9	4,1	76,4	91	80	74	80	,437	,499	87,1	4,1	4,2	77,3	92	82	74	82	77,4	111,6		S.	S. E.	do	do
31	,555	,611	85,5	4,5	4,7	77,3	91	80	75	80	,452	,513	86,1	4,8	4,3	77,7	92	77	77	82	75,8	101,2	,35	S. E.	S. E.	hazy.	do
Mean.	29,517	29,549	85,8	4,7	4,4	76,9	92	79	76		29,414	29,472	87,5	5,6	4,9	77,1	90	74	72		76,3		11,35	lightsoutherly		sultry weather.	

The remarks of last month apply to the barometers. The differences have been .032 and .048 at 10 A. M. and 4 P. M. respectively, agreeing with former observation. The *Wet-Barometer* column has been omitted this month to make room for a daily comparison (which will be continued) of the three methods of finding the percentage of humidity in the air. The first column is taken from the table for the wet-bulb instrument inserted in the July number: the second column is calculated from Dalton's table of aqueous tension;—dividing the tension at the dew point by the tension at the temperature of the air: the third is taken from my table for the hygrometer published in the Royal Institution Journal and in the Oriental Magazine for June 1827. It should be noted that (where not observed by myself) there is a tendency to estimate the dew-point a little below the truth, which makes the calculated dryness too great.—J. P.